ORDER NO. SD81112090C2

Service Manual

Direct Drive Automatic Turntable System

SL-5

[E], [EK], [XL], [EG], [EB],
[EF], [XA], [EH], [Ei], [EC]

Areas

* [E] is available in Switzerland and Scandinavia.
* [EK] is available in United Kingdom.
* [XL] is available in Australia.
* [EG] is available in F.R. Germany.
* [EB] is available in Belgium.
* [EF] is available in France.
* [XA] is available in Southeast Asia, Oceania, Africa, Middle Near East and Central South America.
* [EH] is available in Holland.
* [Ei] is available in Italy.
* [EC] is available in Czechoslovakia.

English

Specifications

Specifications are subject to change without notice for further improvement.
Weight and dimensions shown are approximate.

■ General

Power supply:	220 V, 50/60 Hz
Power consumption:	10 W
Dimensions: (W×H×D)	31.5 × 8.8 × 31.5 cm (12-1/2" × 3-1/2" × 12-1/2") 31.5 × 39 × 31.5 cm (12-1/2" × 15-23/64" × 12-1/2") (Maximum height when top (dust cover) is open.)
Weight:	4.4 kg (9.7 lb.)

■ Turntable section

Type:	Direct drive Automatic turntable Auto start/Auto lead-in Auto return Auto stop Repeat play Auto speed select Manual speed selection possible Auto size select Record presence detection
Drive method:	Direct drive
Motor:	Brushless DC motor
Drive control method:	F·G servo control
Turntable platter:	Aluminum die-cast Diameter 30 cm (12")
Turntable speeds:	33-1/3 rpm and 45 rpm Auto speed select (Manual selection possible)
Wow and flutter:	0.012% WRMS* 0.025% WRMS (JIS C5521) ±0.035% peak (IEC 98A Weighted)

Measured by obtaining signal from built-in frequency generator of motor assembly.

Rumble:	−56 dB (IEC 98A Unweighted) −78 dB (IEC 98A Weighted)

■ Tonearm section

Type:	Dynamic balanced type Linear tracking tonearm 4-pivot gimbal suspension
Effective length:	10.5 cm (4-1/8")
Tracking error angle:	Within ±0.1°
Effective mass:	9 g (including cartridge)
Resonance frequency:	12 Hz
Tonearm drive motor:	DC motor
Phono cable capacitance:	150 pF

■ Cartridge section

Type:	Moving magnet stereo cartridge
Magnetic circuit:	All laminated core

Technics

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

Frequency response:	10 Hz ~ 30 kHz 20 Hz ~ 10 kHz ±1 dB
Output voltage:	2.5 mV at 1 kHz, 5 cm/s. zero to peak lateral velocity (7 mV at 1 kHz, 10 cm/s. zero to peak 45° velocity [DIN 45 500])
Channel separation:	22 dB at 1 kHz
Channel balance:	Within 2 dB at 1 kHz
Recommended load impedance:	47 kΩ~100 kΩ
Compliance (dynamic):	12×10^{-6} cm/dyne at 100 Hz
Stylus pressure range:	1.25 ±0.25 g (12.5 ±2.5 mN)
Weight:	6.0 g (cartridge only)
Replacement stylus:	EPS-24CS

* **The product for destination [XA] is equipped with voltage selector.**
* **Power Supply:** 240V, 50/60Hz
  For United Kingdom and Australia ([EK] and [XL] areas)

Deutsch

TECHNISCHE DATEN

Änderungen der technischen Daten vorbehalten.
Die angegebenen Gewichts- und Abmessungsdaten sind circa Werte.

■ Allgemeine Daten

Stromversorgung:	220 V, 50/60 Hz Wechselstrom
Leistungsaufnahme:	10 W
Abmessungen:	31,5×8,8×31,5 cm
(B×H×T)	31,5×39×31,5 cm (Maximale Höhe bei vollständig geöffnetem Gehäuseoberteil.)
Gewicht:	4,4 kg

■ Plattenspieler

Typ:	Direktangetriebener Automatischer Plattenspieler Auto-Start/Auto-Zuführung Rückführautomatik Stop-Automatik Wiederhol-Betrieb Automatische Drehzahlwahl Manuelle Drehzahlwahl möglich Automatische Plattengrößewahl Plattenpräsenz-Registrierung
Antrieb:	Direktantrieb
Motor:	Kollektorloser Gleichstrommotor
Antriebsregel-Methode:	FG-Servo-Steuerung
Plattenteller:	Aluminium-Druckguß Durchmesser 30 cm
Plattenteller-Drehzahlen:	33-1/3 und 45 U/min Automatische Drehzahlwahl (manuelle Wahl möglich)
Gleichlaufschwankungen:	0,012% WRMS* 0,025% WRMS (JIS C5521) ±0,035% Spitze (IEC 98A bewertet)

*Gemessen anhand von Signalen vom eingebauten Frequenzgenerator des Motorbauteils.

Rumpel-Fremdspannungsabstand:	−56 dB (IEC 98A unbewertet)
Rumpel-Geräuschspannungsabstand:	−78 dB (IEC 98A bewertet)

■ Tonarm

Typ:	Dynamisch ausbalancierter Tangential-Tonarm mit Kardanaufhängung mit 4-Punkt-Drehlager
Effektive Länge:	105 mm
Spurfehlwinkel:	Innerhalb ±0.1°
Effektive Masse:	9 g (einschließlich Tonabnehmer)
Resonanzfrequenz:	12 Hz
Tonarm-Antriebsmotor:	Gleichstrommotor

■ Tonabnehmer

Typ:	Stereo-Magnet-Tonabnehmer mit Einpunkt-Aufhängungssystem
Magnetkreis:	Ganzlamellenkern
Frequenzgang:	10 Hz bis 30 kHz 20 Hz bis 10 kHz ±1 dB
Ausgangsspannung:	2,5 mV bei 1 kHz 5 cm/s. Null-zu-Spitze, lateral [7 mV bei 1 kHz 10 cm/s. Null-zu-Spitze, 45° (DIN 45 500)]
Kanaltrennung:	22 dB bei 1 kHz
Kanalabweichung:	Innerhalb 2 dB bei 1 kHz
Empfohlene Endimpedanz:	47 kΩ ~100 kΩ
Nachgiebigkeit (dynamisch):	12×10^{-6} cm/dyn bei 100 Hz
Auflagekraft-Einstellbereich:	1,25 ± 0,25 g (12,5 ±2,5 mN)
Gewicht:	6,0 g (nur Tonabnehmer)
Ersatznadel:	EPS-24CS

Français

CARACTERISTIQUES

Les spécifications sont susceptibles d'être modifiées sans préavis.
Le poids et les dimensions donnés sont approximatifs.

■ Généralités

Alimentation: Alternatif 220 V, 50/60 Hz
Consommation: 10 W
Dimensions: 31,5 × 8,8 × 31,5 cm
(L×H×P) 31,5 × 39 × 31,5 cm
(Hauteur maximum lorsque le dessus (couvercle protège-poussière) est ouvert.)
Poids: 4,4 kg

■ Platine de lecture

Type: Entraînement direct
Platine automatique
Départ automatique/Entrée automatique
Retour automatique
Arrêt automatique
Auditon répétée
Sélection de vitesse automatique
Sélection automatique du diamètre
Sélection de vitesse manuelle possible
Détection de la présence d'un disque
Système d'entraînement: Entraînement direct
Moteur: Moteur C.C. sans balai
Système de commande d'entrainement: Générateur de fréquences à servo-commande
Plateau de lecture: Aluminium moulé sous pression
Diamètre 30 cm
Vitesses de la platine: 33-1/3 et 45 t/p.m.
Sélecteur de vitesse automatique
(Sélection manuelle possible)
Pleurage et scintillement: 0,012% de valeur efficace*
0,025% de valeur efficace (JIS C5521)
±0,035% de crête (IEC 98A Pondéré)

* Mesuré par l'obtention d'un signal provenant du générateur de fréquences incorporé de l'ensemble du moteur.

Ronflement: −56 dB (IEC 98A Non pondéré)
−78 dB (IEC 98A Pondéré)

■ Bras de lecture

Type: Bras de lecture d'alignement linéaire de type à équilibre dynamique avec suspension à la cardan à 4 pivots
Longueur effective: 105 mm
Angle d'erreur de piste: En deçà de ±0,1°
Masse réelle: 9 g (y compris la cellule pick-up)
Fréquence de résonance: 12 Hz
Moteur d'entraînement du bras de lecture: Moteur C.C.

■ Cellule pick-up

Type: Cellule pick-up stéréo à aimant mobile
Circuit magnétique: Noyau entièrement feuilleté
Réponse en fréquence: 10 Hz à 30 kHz
20 Hz à 10 kHz ±1 dB
Tension de sortie: 2,5 mV à 1 kHz; 5 cm/s. zéro à vitesse latérale de crête
(7 mV à 1 kHz; 10 cm/s., zéro à vitesse 45° de crête [DIN 45 000])
Séparation des canaux: 22 dB à 1 kHz
Equilibrage des canaux: En deçà de 2 dB à 1 kHz
Impédance de charge recommandée: 47 kΩ~100 kΩ
Elasticité (dynamique): 12×10^{-6} cm/dyne à 100 Hz
Plage de la force verticale d'appui: 1,25 ±0,25 g (12,5 ±2,5 mN)
Poids: 6,0 g (cellule seule)
Remplacement de la pointe de lecture: EPS-24CS

Español

ESPECIFICACIONES

Las especificaciones quedan sujetas a cambios sin aviso previo.
Los peso y las dimensiones indicados son aproximados.

■ En general

Alimentación de corriente: 220 V, 50/60 Hz
Consumo de corriente: 10 W
Dimensiones: 31,5×8,8×31,5 cm
(Ancho×Alto×Prof.) 31,5×39×31,5 cm
(Altura máxima cuando la parte de arriba (tape contra el polvo) está abierta.)
Peso: 4,4 kg

■ Sección del plato giratorio

Tipo: Accionamiento directo
Plato giratorio automático
Arranque automático/ Comienzo automático
Retorno automático
Parada automática
Ejecución repetida
Selección automática de la velocidad
Es posible seleccionar la velocidad a mano
Selección automática del tamaño
Detección de presencia de disco
Método de accionamiento: Accionamiento directo
Motor: Motor de corriente continua sin escobillas
Método de control de accionamiento: Servocontrol por generador de frecuencias
Platillo del plato giratorio: Aluminio fundido
30 cm de diámetro
Velocidades del plato giratorio: 33-1/3 y 45 rpm
Selección automática de la velocidad
(También posibilidad de seleccionar a mano)

Ululaciónes y trémolo: 0,012% WRMS*
0,025% WRMS (JIS C5521)
±0,035% cresta
(IEC 98A Ponderado)

*Medido obteniendo una señal proveniente del generador de frecuencias incorporado del conjunto del motor.

Ruido de rodadura: −56 dB (IEC 98A No ponderado)
−78 dB (IEC 98A Ponderado)

■ Sección del brazo sonoro

Tipo: Brazo sonoro de seguimiento lineal de tipo con equilibrio dinámico con suspensión cardánica de 4 pivotes
Longitud efectiva: 10,5 cm
Angulo de error de seguimiento: Inferior a ±0,1° aproxim.
Masa efectiva: 9 g (incluyendo el cartucho)
Frecuencia de resonancia: 12 Hz
Motor de accionamiento del brazo sonoro: Motor de corriente continua

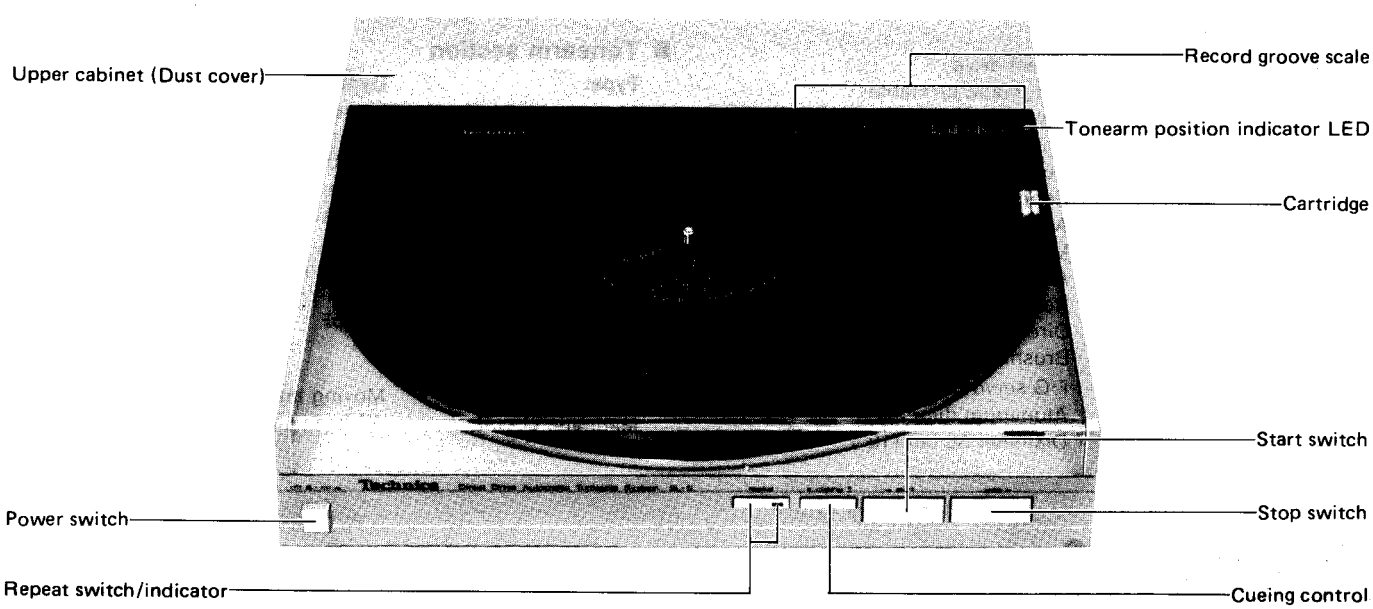
■ Sección del cartucho

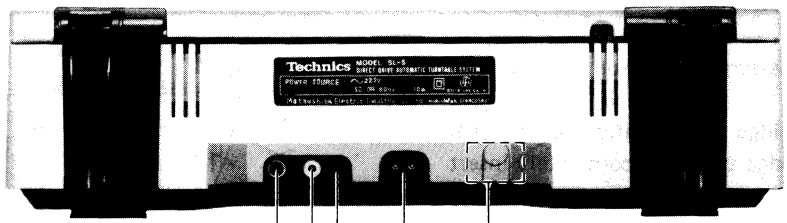
Tipo: Cartucho estereofónico de imán móvil
Circuito magnético: Núcleo totalmente laminado
Respuesta de frecuencia: 10 Hz a 30 kHz
20 Hz a 10 kHz ±1 dB
Voltaje de salida: 2,5 mV a 1 kHz
Velocidad lateral de cero a cresta de 5 cm/s
(7 mV a 1 kHz. Velocidad de 45° de cero a cresta de 10 cm/s [DIN 45 500])
Separación de canales: 22 dB a 1 kHz
Equilibrio de canales: Inferior a 2 dB a 1 kHz
Impedancia de carga recomendada: 47 kΩ~100 kΩ
Elasticidad (dinámica): 12×10^{-6} cm/dina a 100 Hz
Radio de presión de la aguja: 1,25 ±0,25 g (12,5 ±2,5 mN)
Peso: 6,0 g
(cartucho solamente)
Aguja de recambio: EPS-24CS

■ CONTENTS

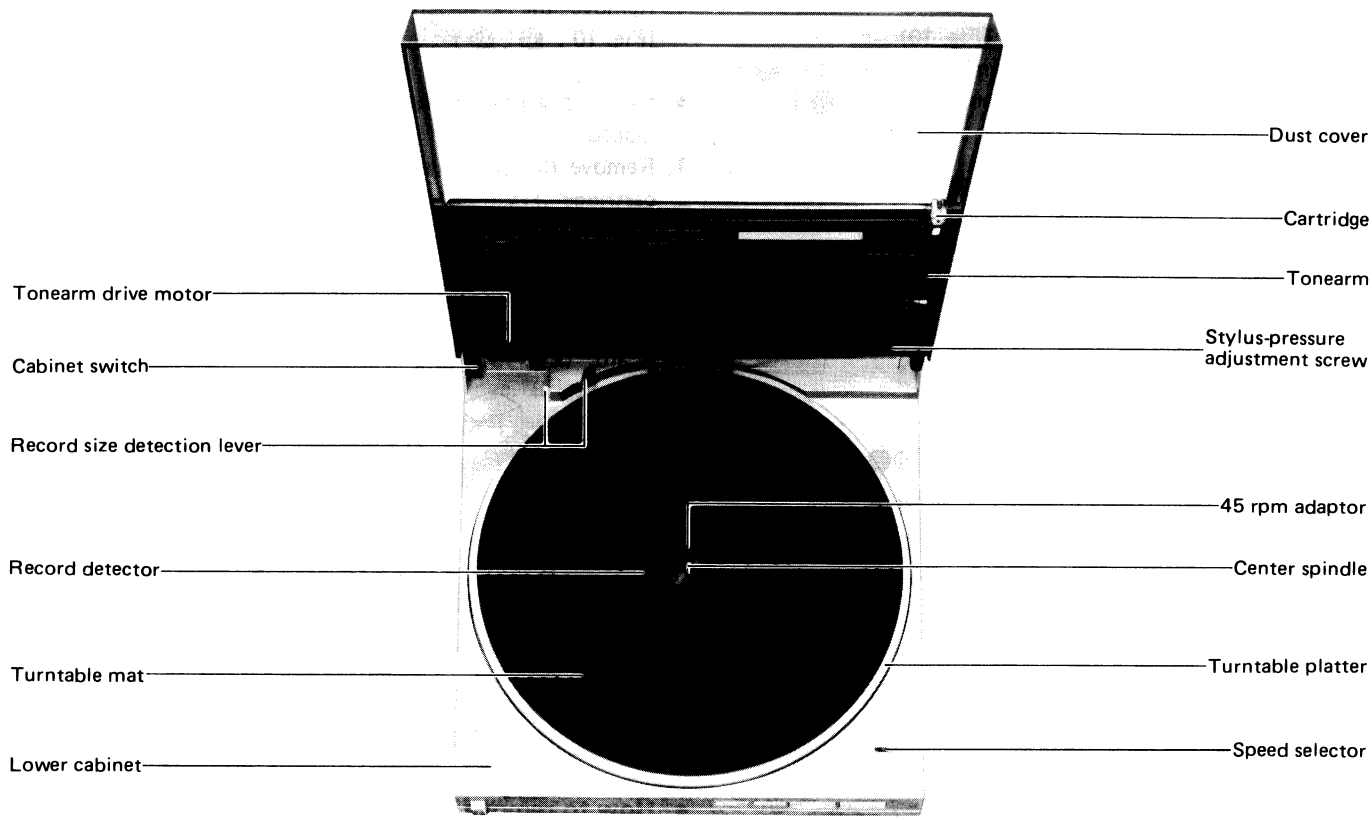
	Page
LOCATION OF CONTROLS	4, 5
DISASSEMBLY INSTRUCTIONS	6 ~ 8
HOW TO SET THE TONEARM DRIVE ROPE	9
CHECKING METHOD OF THE UNIT	9
MEASUREMENTS AND ADJUSTMENTS (English)	10 ~ 12
MESSUNGEN UND JUSTIERUNGEN (Deutsch)	13, 14
MESURAGES ET REGLAGES (Français)	15, 16
MEDICIONES Y AJUSTE (Español)	17, 18
REPLACEMENT PARTS (Electric Parts)	19
TIMING CHART	20
BLOCK DIAGRAM	21, 22
CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM	23, 24
SCHEMATIC DIAGRAM	25, 26
EXPLODED VIEWS	27, 29
REPLACEMENT PARTS LIST (Cabinet and Chassis Parts)	29
PACKINGS	30

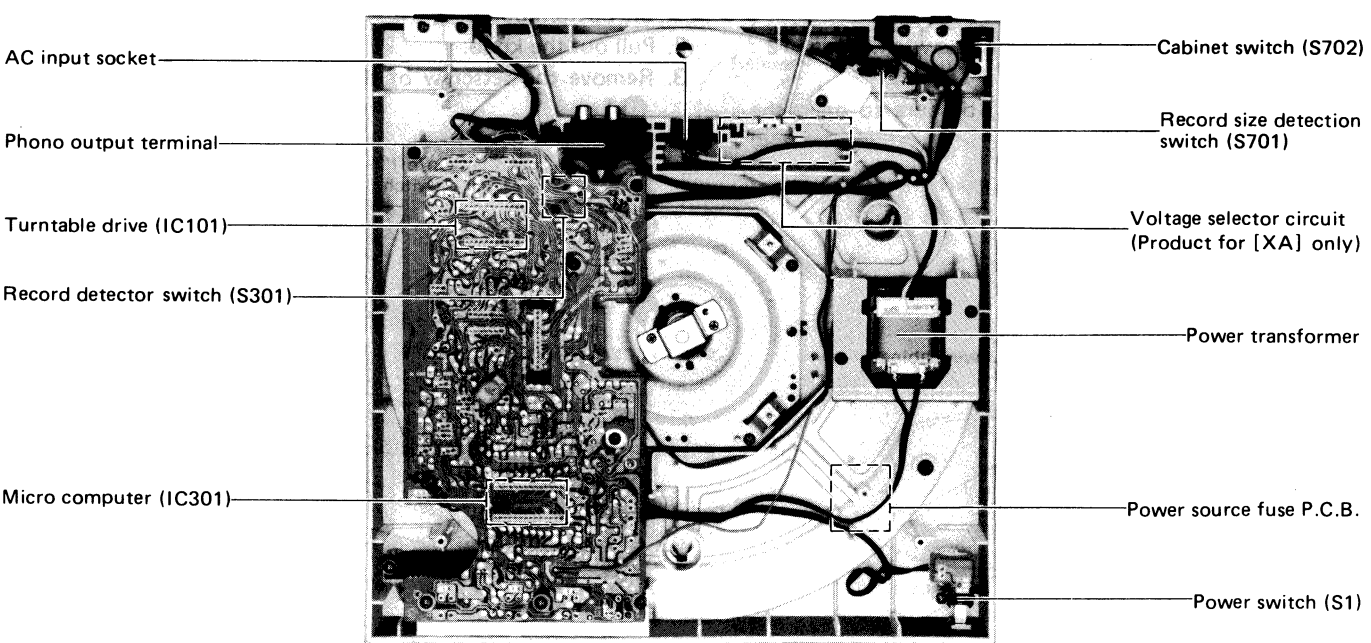
■ LOCATION OF CONTROLS





*** The product for destination [XA] is equipped with voltage selector.**





■ DISASSEMBLY INSTRUCTIONS

• How to remove the turntable

1. Open the upper cabinet.
2. Detach the 45 rpm adaptor as shown in **Fig. 1.**
3. Remove the turntable mat and lift up the turntable.
   * The turntable is tight fitted onto the center spindle. When removing the turntable, take care not to give damage to the upper cabinet arm motor cover and tonearm cover.
4. When putting the turntable mat on the turntable, match the projection of the turntable (record detector) with the hold of the turntable mat. **(See Fig. 2)**

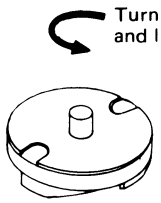


Fig. 1

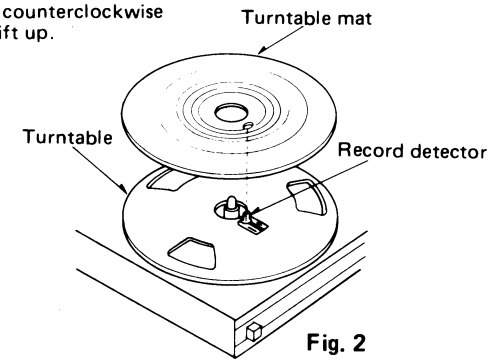


Fig. 2

• How to remove the main printed circuit board

1. Detach the bottom board. **(Refer to "How to remove the bottom board".)**
2. Remove the 6 setscrews of the printed circuit board. **(Fig. 4 : ❺ ~ ❿)**
3. When attaching the printed circuit board, turn the record detector lever counterclockwise. Next, insert the speed selector switch into the knob, and then insert the connector onto the stator frame pins. **(Fig. 4)**
   *** The printed circuit board is grounded to the chassis by screw ❽. When checking the conduction without screw ❽, connect the ground terminal of the printed circuit board to the chassis (stator frame).**

• How to remove the stator frame

1. Detach the main printed circuit board. **(Refer to "How to remove the main printed circuit board".)**
2. Remove the 3 setscrews of the stator frame. **(Fig. 4 : ⓫ ~ ⓭)**

• How to remove the dust cover

1. Open the upper cabinet.
2. Remove the 2 setscrews and pin of the arm motor cover. **(Fig. 5 : ⓮ ~ ⓰).**
3. Press the 2 lugs of the cover with a screwdriver and remove the motor cover. **(See Fig. 5)**
4. Remove the 5 setscrews of the dust cover. **(Fig. 6 : ⓱ , ⓲ and Fig. 7 : ⓳ ~ ㉑)**
   *** Photo 1 shows the set with the dust cover removed.**

• How to remove the bottom board

1. Remove the 45 rpm adaptor and turntable.
2. Turn over the body on a soft cloth taking care not to damage the upper cabinet and dust cover.
3. Remove the 4 setscrews. **(Fig. 3 : ❶ ~ ❹)**

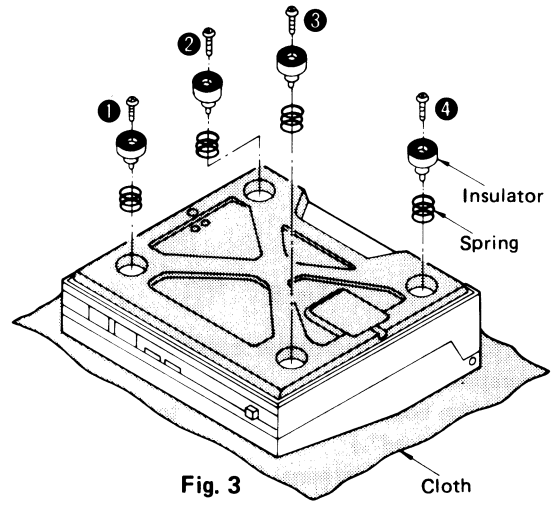


Fig. 3

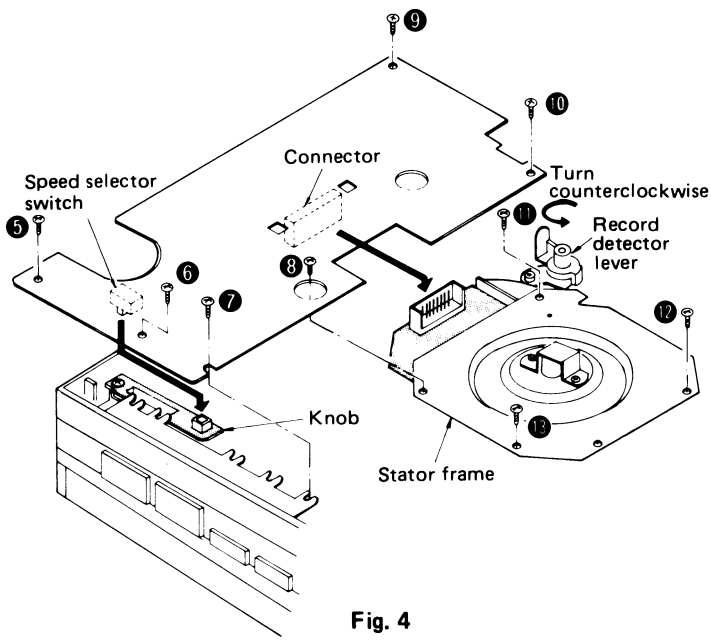


Fig. 4

Photo. 1

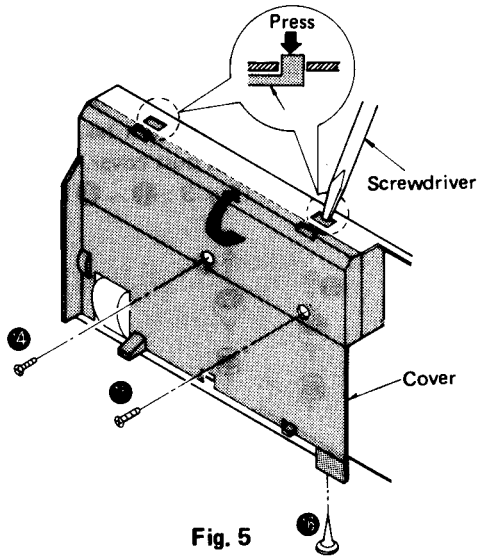


Fig. 5

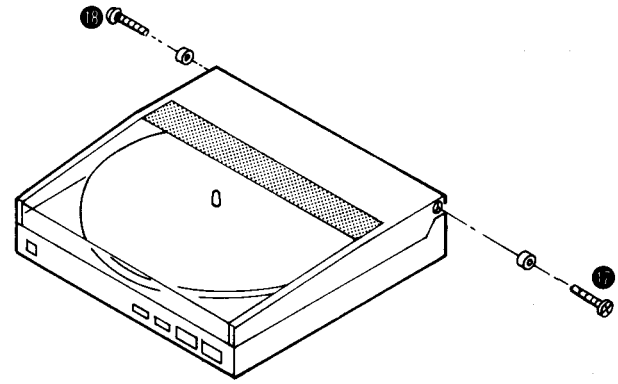


Fig. 6

- **How to remove the upper cabinet**
  (Separation of cabinet)

1. Remove the bottom board. **(Refer to "How to remove the bottom board".)**
2. Detach the output terminal from lower cabinet. **(Fig. 7)**
3. Pull out connectors ㉒ and ㉓. **(Fig. 7)**
4. Remove the 4 setscrews of the hinge. **(Fig. 7 : ㉔ ~ ㉗)**
5. The hinge is engaged with the lower cabinet. The lower cabinet can be separated from the upper cabinet by lifting the cabinet while releasing the hinge claws. **(See Fig. 7 (A))**

- **How to remove the arm motor printed board**

1. Open the upper cabinet and detach the arm motor cover. **(Refer to "How to remove the dust cover".)**
2. Remove the setscrews ㉘. **(Fig. 7)**
3. Release the claws with the nail and remove the position detecting circuit and the rest switch. **(Fig. 7 : (B), (C))**

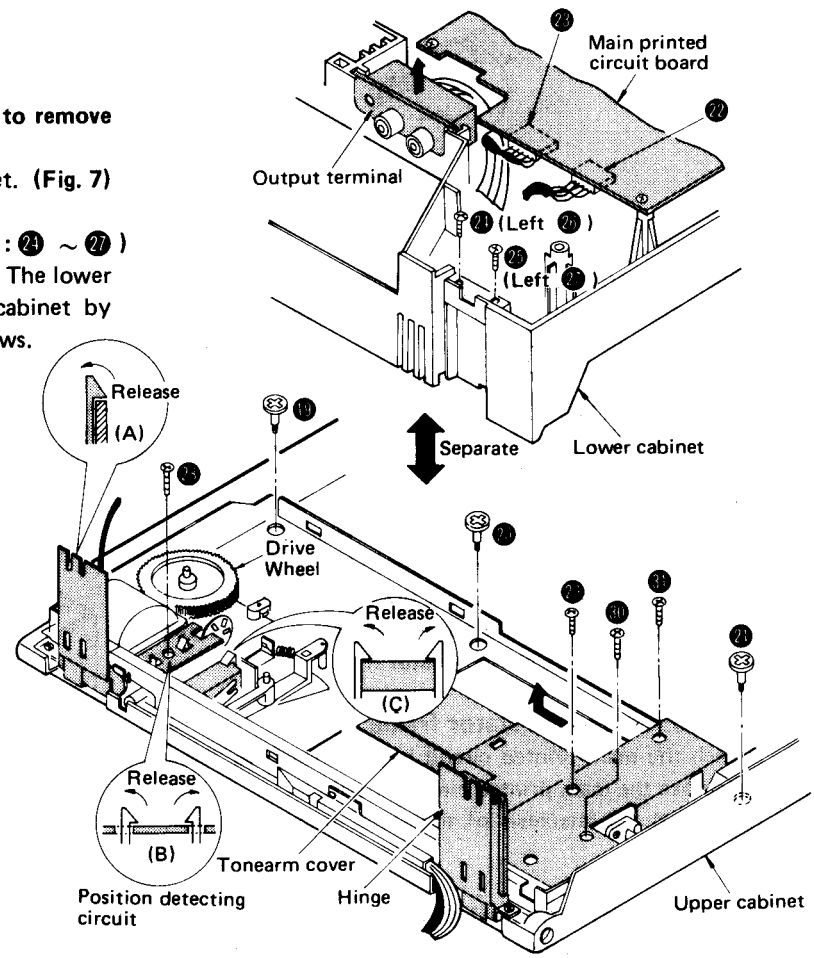


Fig. 7

- **How to remove the Hall element**

1. Remove the turntable. **(Refer to "How to remove the turntable".)**
2. Unsolder the Hall element.
   ***The Hall element should be installed with the marking side up as in Fig. 8.**
   With the marking side up, no problem will occur even when the leg is reversed in position.

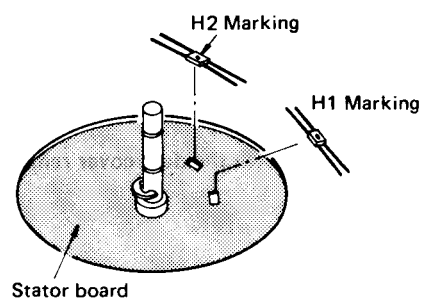


Fig. 8

• How to remove the cartridge

1. Open the upper cabinet.
2. Completely loosen the setscrew and pull out the cartridge. **(Fig. 9)**
3. When attaching the cartridge again, match the tonearm connector with the cartridge pin, then completely insert it and tighten the setscrew.

• How to remove the tonearm

1. Remove the cartridge. **(Refer to "How to remove the cartridge".)**
2. Remove the 3 setscrews of the tonearm cover **(Fig. 7 : ㉙ ~ ㉛)** and detach the cover in the direction of the arrow.
3. Unsolder 5 leads of the cartridge. **(Fig. 10)**
4. Remove the setscrew of the tonearm board. **(Fig. 10 : ㉜)**
5. Remove the setscrew of the tonearm. **(Fig. 11 : ㉝)**

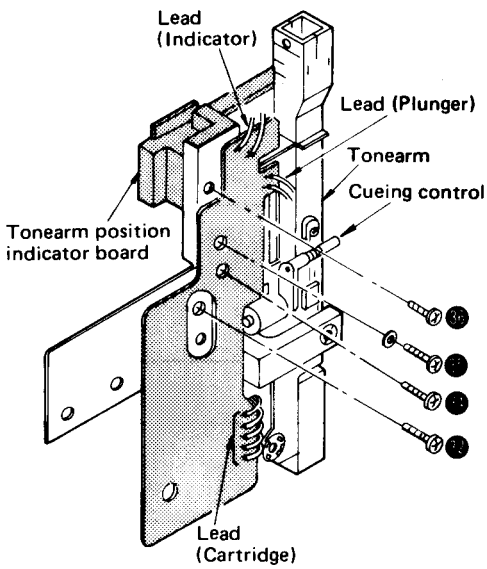


Fig. 10

• How to remove the cabinet switch

1. Remove the bottom board. **(Refer to "How to remove the bottom board".)**
2. Remove the setscrew of the cabinet switch. **(Fig. 12 : ㊲)**
3. When fitting the cabinet switch, be sure to open the upper cabinet.

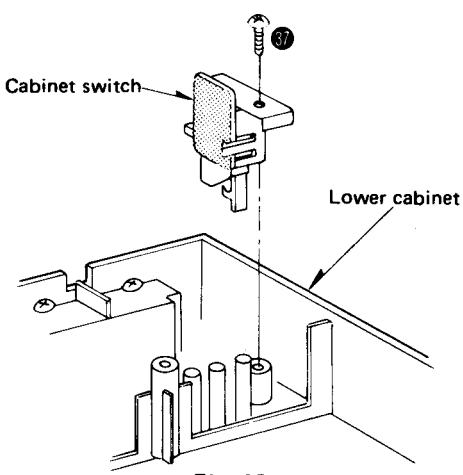


Fig. 12

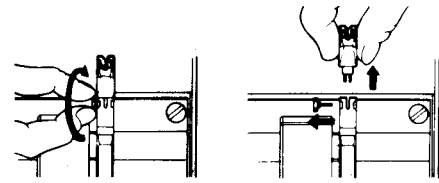


Fig. 9

• How to remove the cueing control ass'y

1. Remove the cartridge. **(Refer to "How to remove the cartridge".)**
2. Remove the tonearm cover. **(Refer to "How to remove the tonearm".)**
3. Unsolder 2 leads of the plunger.
4. Remove the 2 setscrews of the cueing control ass'y. **(Fig. 10 : ㉞ , ㉟)**

• How to remove the tonearm position indicator board

1. Remove the cartridge. **(Refer to "How to remove the cartridge".)**
2. Remove the tonearm cover. **(Refer to "How to remove the tonearm".)**
3. Unsolder 2 leads of the indicator. **(Fig. 10)**
4. Remove the setscrew of the tonearm position indicator board. **(Fig. 10 : ㊱)**

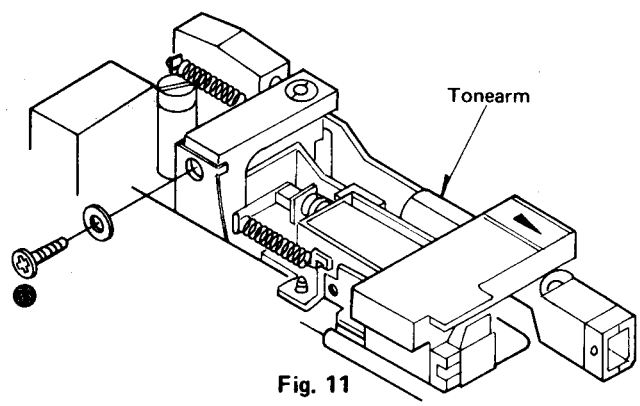


Fig. 11

• How to remove the on/off switch

1. Remove the bottom board. **(Refer to "How to remove the bottom board".)**
2. Pull out the knob.
3. Remove the setscrew of the on/off switch. **(Fig. 13 : ㊳)**

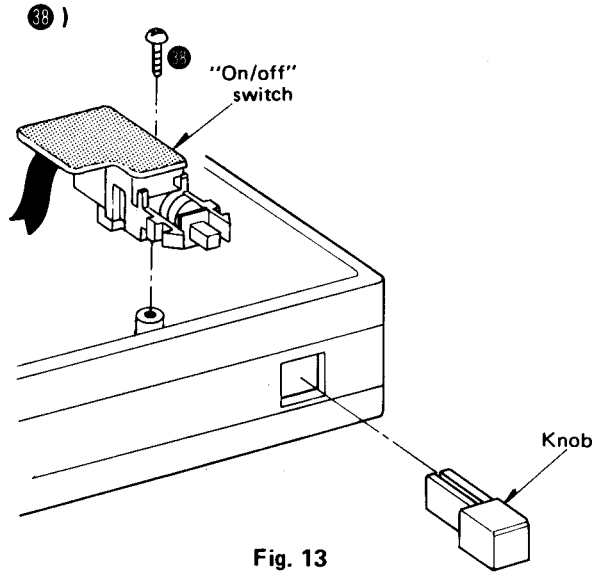


Fig. 13

■ HOW TO SET THE TONEARM DRIVE ROPE

Set the rope according to the following procedure.

1. Open the upper cabinet and remove the cartridge.
2. Remove the arm motor cover and tonearm cover.
3. Detach the arm drive wheel "C" ring ㊴ and washer ㊵, and remove the drive wheel. **(See Fig. 14)**
4. Turn over the arm drive wheel and set the rope in the order of 1 ~ 2. **(Fig. 15)**
5. Holding the rope set over the arm drive wheel with the hand, set the tope over the wheels in the order of 3 ~ 5 in **Fig. 16.**
6. After setting the rope, rotate the worm gear by hand until the tonearm matches the rope connector.
7. Rotate the worm gear by hand and check that the tonearm operates, and then fit the washer ㊵ and "C" ring ㊴ in place.

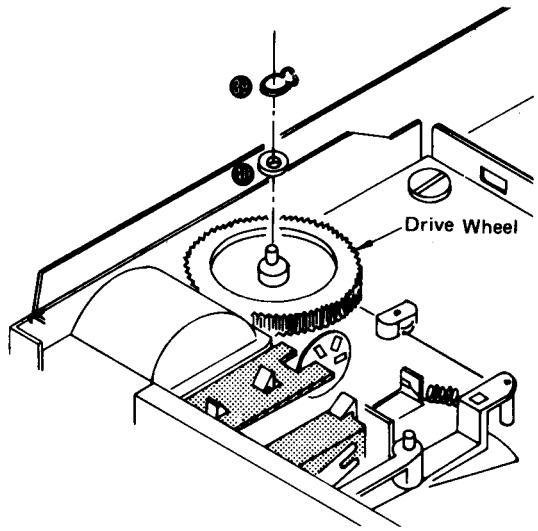


Fig. 14

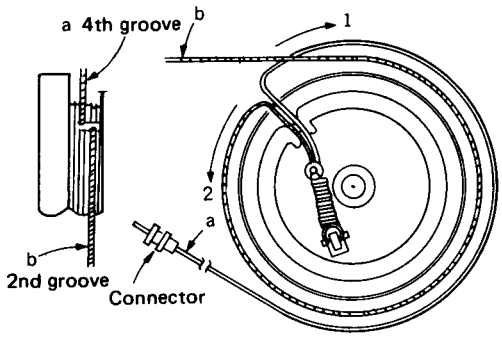


Fig. 15

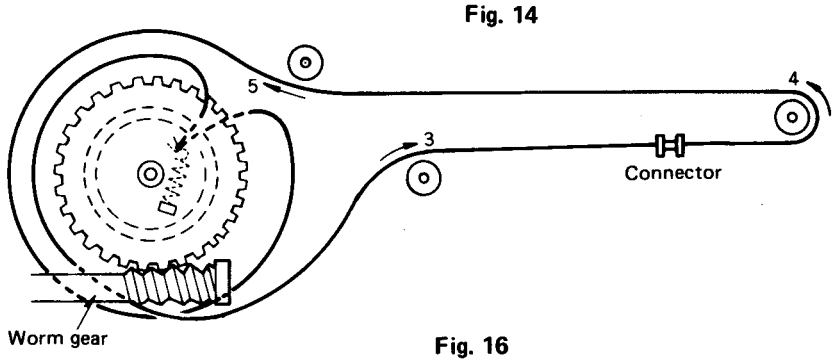


Fig. 16

■ CHECKING METHOD OF THE UNIT

The unit (circuits, etc.) can be checked and adjusted by the following method.

① **Lower cabinet**
(Main printed circuit board)

- **Use a repair table.**
  (Voltage check, speed adjustment)
  1. Remove the bottom board.
  2. Place the unit on the repair table. **(Fig. 17)**
     ***The speed adjustment can be performed without removing the bottom board.**

② **Upper cabinet**
(Tonearm, arm driving circuit, main printed circuit board)

- **Opan the upper cabinet. Place the unit on the repair table or raise it.**
  (Clock frequency check, tonearm adjustment and arm driving circuit check)
  1. Remove the bottom board.
  2. Completely open the upper cabinet.
  3. Press the cabinet switch with adhesive tape. **(Fig.18)**
  4. Press the record detector with adhesive tape. **(Fig.19)**
  5. Place the unit on the repair table. **(Fig. 20)**
     Or, remove the 45 rpm adaptor and turntable mat and then raise the unit. **(Fig. 21)**
     ***In the case of clock frequency adjustment, it is not necessary to press the cabinet switch with tape.**
     ***Turn the on/off switch ON and press the start button. Then the tonearm automatically detects the 17 cm disk size and 45 rpm, and the turntable starts rotating.**

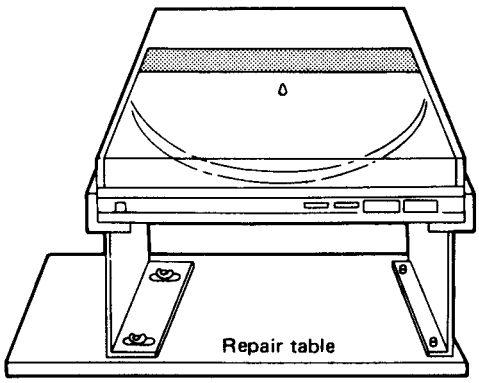


Fig. 17

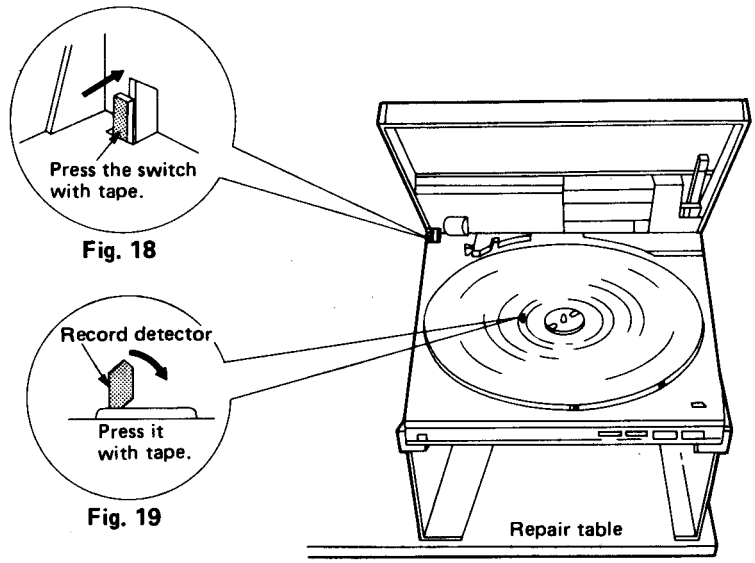


Fig. 18

Fig. 19

Fig. 20
(Abb. 1)

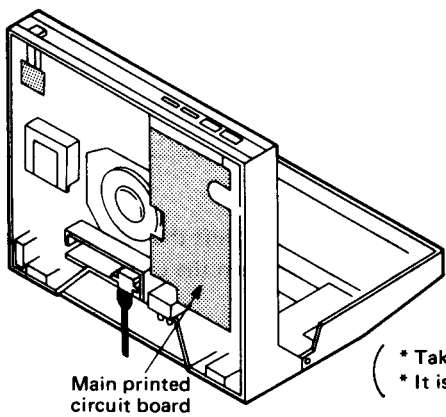
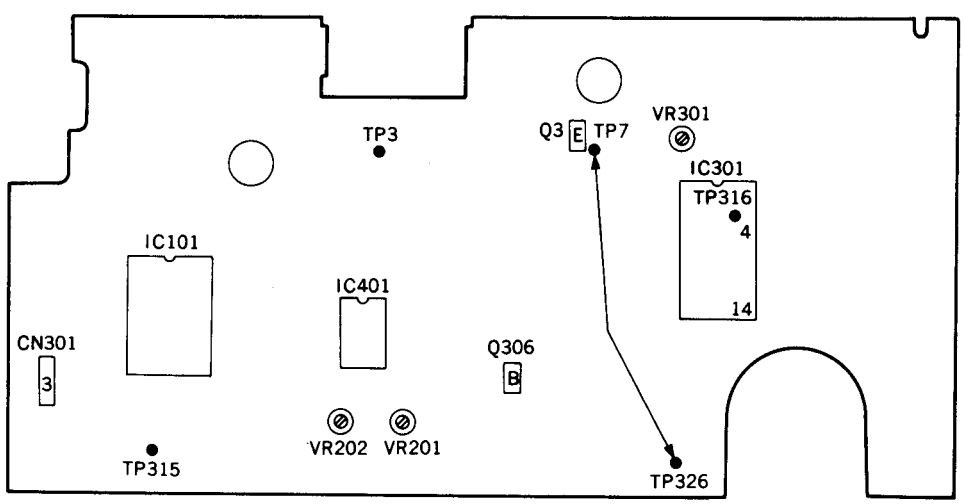


Fig. 21

(* Take care not to allow the unit to falle down.
* It is desirable to use a repair table for the repair job.)

■ MEASUREMENTS AND ADJUSTMENTS ■■■■■ English ■■■■■

- **Diagram for printed circuit board adjustment**



*** Connect between TP7 and TP326 for clock frequency adjustment.**

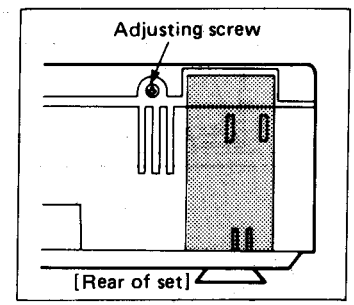
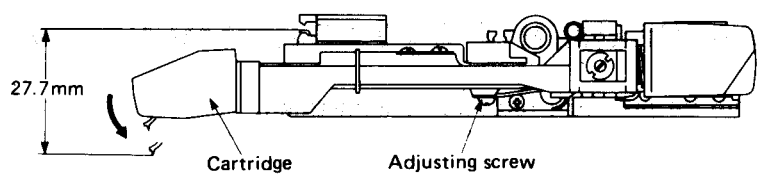
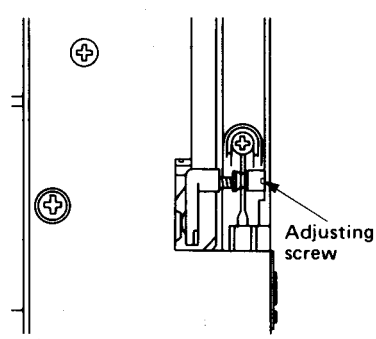
*** Zwischen TP7 und TP326 anschließen, für die Zeitgeberfrequenz.**

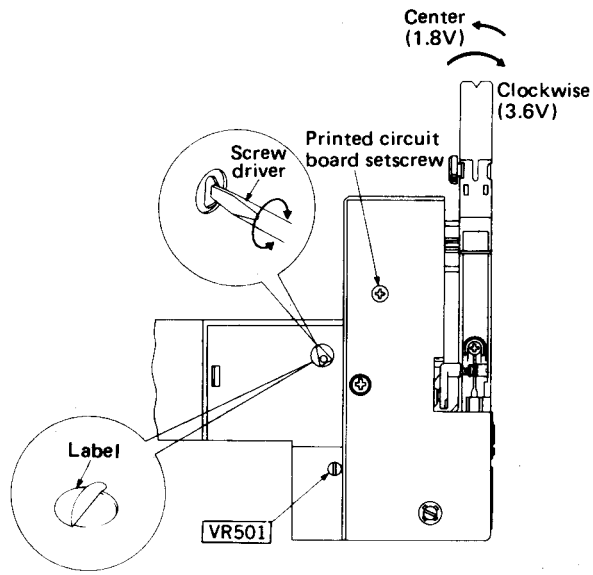
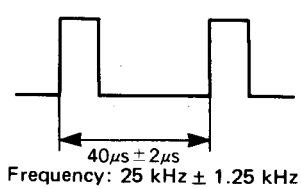
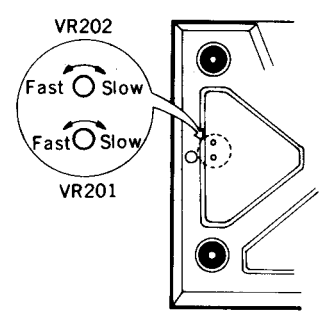
*** Connecter entre TP7 et TP326 pour le réglage de la fréquence des impulsions d'horloge.**

*** Conectar entre TP7 y TP326 para ajuste de frecuencia de reloj.**

- **Instruments used**

1. DC voltmeter
2. Oscilloscope or frequency counter

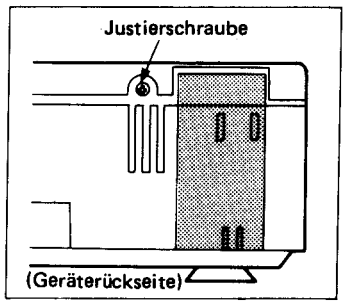
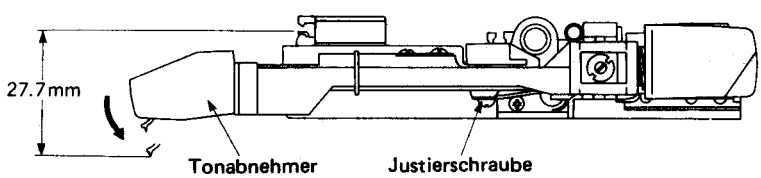
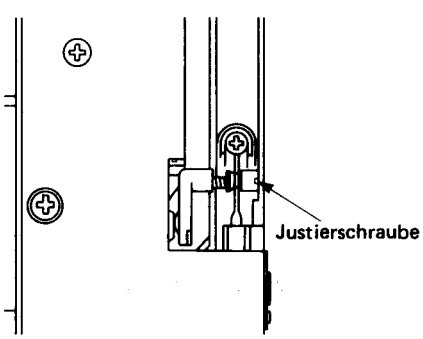
Step	Item	Adjustment procedure
1	**Auto start position**	1 Make sure that the tonearm is at the start position (on the rest). 2 Adjust by turning the auto start position adjusting screw. **Tonearm lowers inside the disc:** Turn the adjusting screw clockwise. **Tonearm lowers outside the disc:** Turn the adjusting screw anticlockwise. ***Be sure to use 30 cm record for the adjustment.** 
2	**Arm lift height**	1 Make the set as illustrated in **Fig. 20.** 2 Set the on/off switch to "on" and press the start switch to shift the tonearm inward. 3 Press the cueing control button so that the distance between the cartridge stylus tip and the guide rail is 27.7 mm. **To increase the distance . . . . .** turn the adjusting screw anticlockwise. **To decrease the distance . . . . .** turn the adjusting screw clockwise. 
3	**Tonearm offset angle**	1 Make the set as illustrated in **Fig. 20.** 2 Set the on/off switch to "on" and press the start switch to shift the tonearm inward. 3 Turn the offset angle adjusting screw so that the arm center matches the V-groove of the lift bar. 

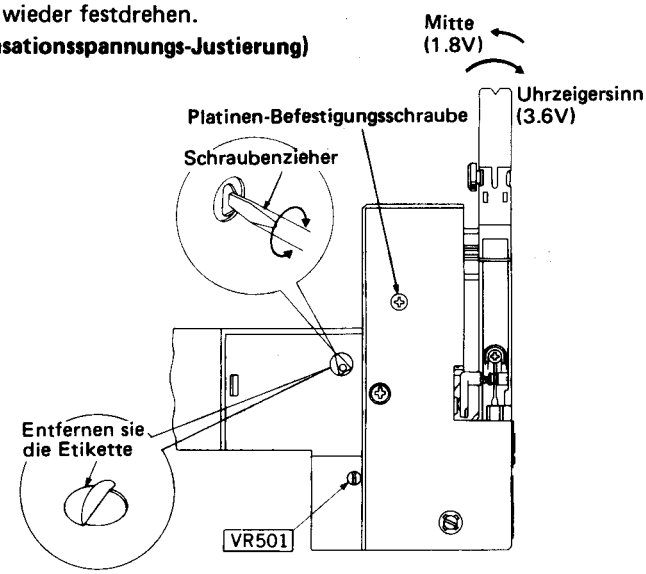
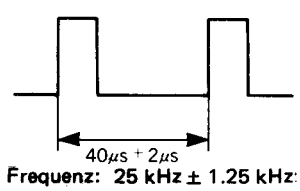
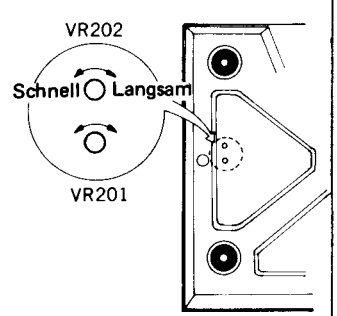
Step	Item	Adjustment procedure
4	**Servo gain and offset voltage**	1 Make the set as illustrated in **Fig. 20.** 2 Connect the DC voltmeter to TP315 (Q306) base or connector CN301 terminal ③ and TP3 (earth). 3 Set the on/off switch to "on" and press the start switch to shift the tonearm inward. 4 Remove the label of the tonearm cover. 5 Completely shift the tonearm to the right. Then, adjust VR501 so that the voltage is 3.6V. **(Servo gain adjustment)** 6 Set the tonearm to the center and make sure that the output voltage is 1.8V. If the voltage is not 1.8V, loosen the printed circuit board setscrew and move the board to the right of left by a screwdriver so that the output voltage becomes 1.8V. After the adjustment, tighten the printed circuit board setscrew. **(Offset adjustment)** 
5	**Clock frequency**	1 Make the set as illustrated in **Fig. 20.** 2 Remove the tape from the cabinet switch. 3 Connect TP7 (Q3 emitter) to TP326 (IC301 pin 14) with clip lead or the like. 4 Connect the oscilloscope or frequency counter to TP316 (IC301 pin 4). 5 Set the on/off switch to "on". 6 Adjust VR301 so that the output waveform cycle is 40 μs ± 2 μs. Also, adjust VR301 so that the output frequency is 25 kHz ± 1.25 kHz. 
6	**Rotational speed**	1 Make the set as illustrated in **Fig. 20.** 2 Play a 17 cm record. 3 Turn VR202 to adjust the speed to the rated speed (45 rpm). 4 Play a 30 cm record. 5 Turn VR201 to adjust the speed to the rated speed (33-1/3 rpm). **Note: Be sure to adjust 45 rpm first.** 

■ MESSUNGEN UND JUSTIERUNGEN — Deutsch

• Zu verwendende Instrumente

1. Elektronisches Gleichstrom-Voltmeter
2. Oszilloskop oder Frequenzzähler

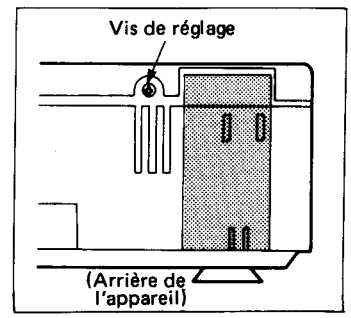
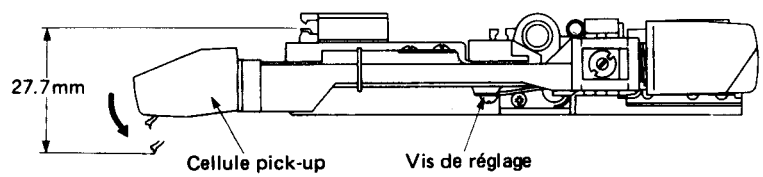
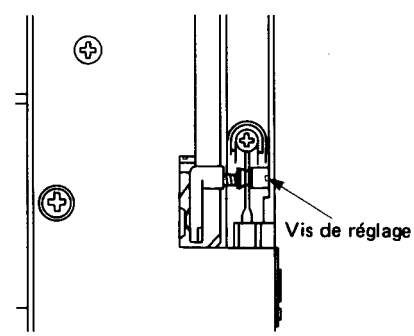
Schritt	Gegenstand	Justiermethode
1	**Auto-Start-Position**	1 Überprüfen, daß der Tonarm in der Startposition (auf der Tonarmablage) ist. 2 Durch Drehen der Auto-Start-Positions-Justierschraube justieren. **Bei Absenken des Tonarms zu weit innen:** Die Justierschraube im Uhrzeigersinn drehen. **Bei Absenken des Tonarms zu weit außen:** Die Justierschraube entgegen dem Uhrzeigersinn drehen. ***Für die Justierung muß unbedingt eine 30 cm-Platte verwendet werden.** 
2	**Tonarm-lifthöhe**	1 Das Gerät so einstellen, wie in **Abb. 1** gezeigt. 2 Den Netzschalter auf ON stellen und die Starttaste drücken, um den Tonarm nach innen zu bewegen. 3 Die Lifttaste drücken, so daß der Abstand zwischen der Tonabnehmer-Nadelspitze und der Führungsschiene 27.7 mm beträgt. **Um den Abstand zu vergrößern . . . .** die Justierschraube entgegen dem Uhrzeigersinn drehen. **Um den Abstand zu verkleinern . . . .** die Justierschraube im Uhrzeigersinn drehen. 
3	**Tonarm-Reibungs-winkel**	1 Das Gerät so einstellen, wie in **Abb. 1** gezeigt. 2 Den Netzschalter auf ON stellen und die Starttaste drücken, um den Tonarm nach innen zu bewegen. 3 Die Reibungswinkel-Justierschraube drehen, bis die Armmitte mit der V-Kerbe am Liftbalken übereinstimmt. 

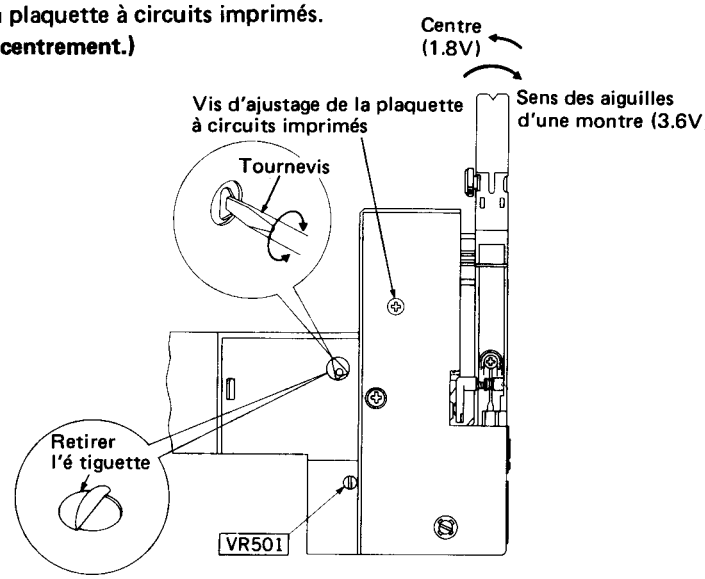
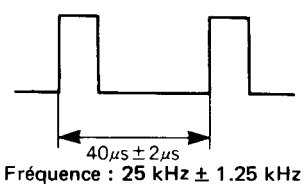
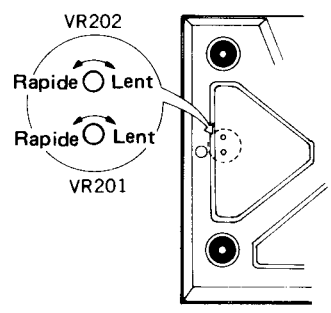
Schritt	Gegenstand	Justiermethode
4	**Servo-Verstärkungs- und Kompensations-Spannung**	1 Das Gerät so einstellen, wie in **Abb. 1** gezeigt. 2 Das elektronische Gleichstrom-Voltmeter an TP315 (Q306) Basis oder Anschluß CN301 Stift 2 und TP3 (Masse). 3 Den Netzschalter auf ON stellen und die Starttaste drücken, um den Tonarm nach innen zu bewegen. 4 Den Tonarm ganz nach rechts stellen. VR501 dann so einstellen, daß die Spannung 3.6V beträgt. **(Servo-Verstärkungs-Justierung)** 5 Den Tonarm in die Mitte stellen und überprüfen, daß die Ausgangsspannung 1.8V beträgt. 6 Falls die Spannung nicht 1.8V beträgt, die Platinen-Befestigungsschraube lösen und die Platine mit einem Schraubenzieher nach links oder rechts bewegen, bis die Ausgangsspannung 1.8V beträgt. Nach der Justierung, die Platinen-Befestigungsschraube wieder festdrehen. **(Kompensationsspannungs-Justierung)** 
5	**Zeitgeberfrequenz**	1 Das Gerät so einstellen, wie in **Abb. 1** gezeigt. 2 Das Klebband vom Gehäuseschalter entfernen. 3 Mit einem Klemmenkabel o.ä. TP7 (Q3 Emitter) mit TP326 (IC301 Stift 14) verbinden. 4 Das Oszilloskop oder den Frequenzzähler an TP316 (IC301 Stift 4) anschließen. 5 Den Netzschalter auf ON stellen. 6 VR301 so justieren, daß der Ausgangswellenform-Zyklus 40μs ± 2μs beträgt. Ebenfalls VR301 so justieren, daß die Ausgangsfrequenz 25 kHz ± 1.25 kHz beträgt. 
6	**Drehzahl**	1 Das Gerät so einstellen, wie in **Abb. 1** gezeigt. 2 Eine 17 cm-Platte abspielen. 3 VR202 drehen, um die Drehzahl auf die Nenndrehzahl zu justieren (45 U/min). 4 Eine 30 cm-Platte abspielen. 5 VR201 drehen, um die Drehzahl auf die Nenndrehzahl zu justieren (33-1/3 U/min). **Anmerkung: Unbedingt zuerst 45 U/min justieren.** 

■ MESURAGES ET RÉGLAGES — Français

- **Appareils utilisés**

1. Voltmètre électronique à C.C.
2. Oscilloscope ou compteur de fréquence

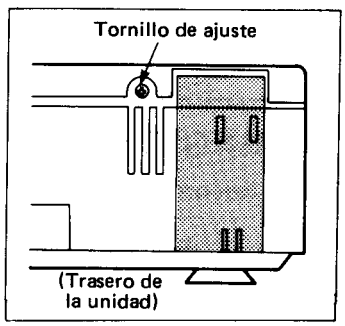
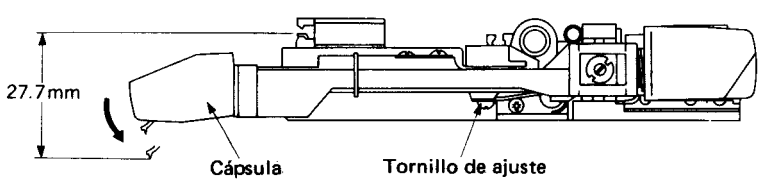
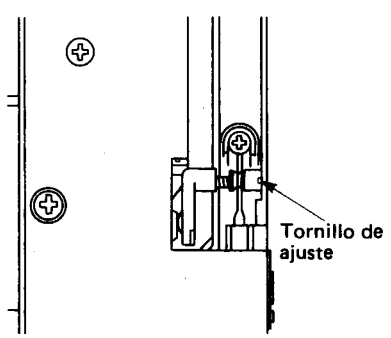
Etape	Article	Procédure de réglage
1	**Position de démarrage automatique**	1 S'assurer que le bras de lecture est à la position de démarrage (sur l'accoudoir). 2 Ajuster en tournant la vis d'ajustement du positionnement de démarrage automatique. **Le bras de lecture s'abaisse à l'intérieur du disque:** Tourner la vis de réglage dans le sens des aiguilles d'une montre. **Le bras de lecture s'abaisse à l'extérieur du disque:** Tourner la vis de réglage dans le sens inverse des aiguilles d'une montre. ***S'assurer d'utiliser un disque de 30 cm pour la mise au point.** 
2	**Hauteur d'élévation du bras**	1 Effectuer le réglage comme il est illustrré à la **Fig. 20.** 2 Mettre l'interrupteur d'alimentation sur "on" (marche) et appuyer sur le bouton de mise en marche pour déplacer le bras de lecture vers l'intérieur. 3 Appuyer sur le bouton de pose/relevage de façon à ce que la distance entre l'extrémité de la pointe de lecture de la cellule pick-up et le rail de guidage soit de 27.7 mm. **Pour augmenter la distance . . . .** Tourner la vis de réglage dans le sens inverse des aiguilles d'une montre. **Pour diminuer la distance . . . .** Tourner la vis de réglage dans le sens des aiguilles d'une montre. 
3	**Angle de décalage du bras de lecture**	1 Effectuer le réglage comme il est illustré à la **Fig. 20.** 2 Mettre l'interrupteur d'alimentation sur "on" (marche) et appuyer sur le bouton de mise en marche pour déplacer le bras de lecture vers l'intérieur. 3 Tourner la vis de réglage de l'angle de décalage de façon à ce que le centre du bras coincide avec la rainure en V de la tige d'élévation. 

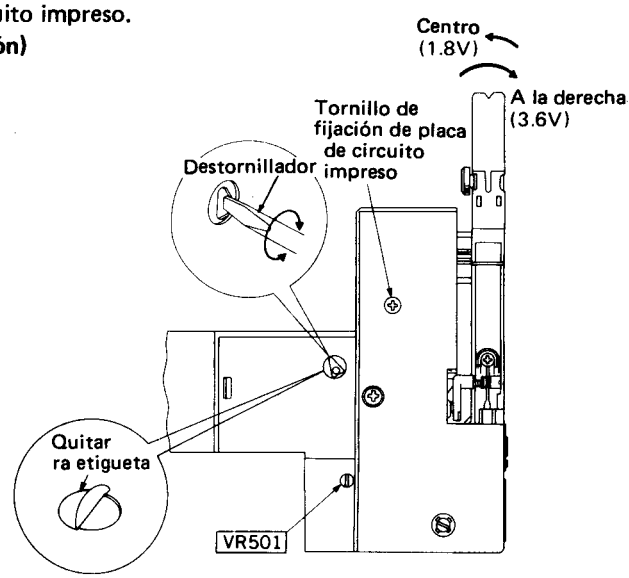
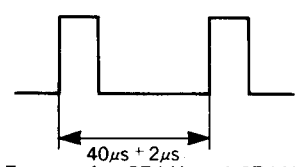
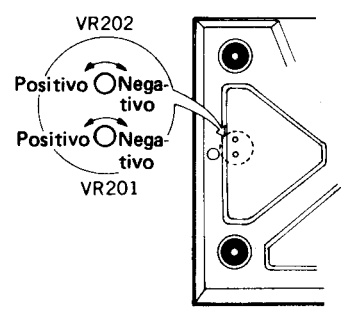
Etape	Article	Procédure de réglage
4	**Amplification servo-mécanique et tension de suppression.**	1 Effectuer le réglage comme il est illustré à la **Fig. 20.** 2 Brancher un voltmètre électronique à C.C. à la base de TP315 (Q306) ou à la borne 3 du connecteur CN301 et de TP3 (mise à la terre). 3 Mettre l'interrupteur d'alimentation sur "on" (marche) et appuyer sur le bouton de mise en marche pour déplacer le bras de lecture vers l'intérieur. 4 Déplacer complètement le bras de lecture vers la droite. Puis, ajuster VR501 de façon à ce que la tension soit de 3.6V. **(Réglage de l'amplification servo-mécanique.)** 5 Placer le bras de lecture au centre et s'assurer que la tension de sortie soit de 1.8V. 6 Si la tension n'est pas de 1.8V, desserrer la vis d'ajustage de la plaquette à circuits imprimés et déplacer la plaquette vers la droite ou vers la gauche avec un tournevis, de façon à ce que la tension de sortie soit de 1.8V. Après la mise au point, resserrer la vis d'ajustage de la plaquette à circuits imprimés. **(Mise au point du décentrement.)** 
5	**Fréquence des impulsions d'horloge**	1 Effectuer le réglage comme il est montré à la **Fig. 20.** 2 Retirer la bande du dispositif de commutation du boîtier. 3 Connecter TP7 (émetteur Q3) à TP326 (broche 14 de IC301) avec un fil de raccordement à pince ou quelquechose de similaire. 4 Brancher l'oscilloscope ou le compteur de fréquence à TP316 (broche 4 de IC301). 5 Mettre l'interrupteur d'alimentation sur "on" (marche). 6 Régler VR301 de façon à ce que le cycle de la forme d'onde de sortie soit de 40μs ± 2μs. En outre, régler VR301 de façon à ce que la fréquence de sortie soit de 25 kHz ± 1.25 kHz.  Fréquence : 25 kHz ± 1.25 kHz
6	**Vitesse rotationnelle**	1 Effectuer le réglage comme il est illustré à la **Fig. 20.** 2 Faire jouer un disque de 17 cm. 3 Tourner VR202 pour ajuster la vitesse à la vitesse nominale de rotation (45 t/p.m.) 4 Faire jouer un disque de 30 cm. 5 Tourner VR201 pour régler la vitesse à la vitesse nominale de rotation (33-1/3 t/p.m.) **Note: S'assurer de régler tout d'abord un 45 t/p.m.** 

■ MEDICIONES Y AJUSTE — Español

- **Instrumentos usados**

1. Voltímetro electrónico CC.
2. Oscilloscopio o contador de frecuencia

Paso	Item	Procedimiento de ajuste
1	**Posición de arranque automático**	1 Asegúrese de que el brazo del fonocaptor está en la posición de arranque (en el soporte). 2 Ajuste girando el tornillo de ajuste de posición de arranque automático. **El brazo del fonocaptor baja dentro del disco:** Gire el tornillo de ajuste a la derecha. **El brazo del fonocaptor baja fuera del disco:** Gire el tornillo de ajuste a la izquierda. ***Para el ajuste, asegúrese de usar un disco de gramófono de 30 cm.** 
2	**Altura de alzo de brazo**	1 Coloque la unidad como se ilustra en la **Fig. 20.** 2 Conecte el interruptor de la corriente y apriete el botón de arranque para desviar el brazo del fonocaptor hacia dentro. 3 Apriete el botón de colocación en surco de la aguja, de manera que la distancia entre la punta de la aguja de la cápsula y el riel de guía sea 27.7 mm. **Para aumentar la distancia . . . .** gire el tornillo de ajuste a la izquierda. **Para disminuir la distancia . . . .** gire el tornillo de ajuste a la derecha. 
3	**Angulo del brazo del fonocaptor**	1 Coloque la unidad como se ilustra en la **Fig. 20.** 2 Conecte el interruptor de la corriente y apriete el botón de arranque para desviar el brazo del fonocaptor hacia dentro. 3 Gire el tornillo de ajuste del ángulo del brazo del fonocaptor de manera que el centro del brazo coincida con la ranura-V de la barra de alza. 

Paso	Item	Procedimiento de ajuste
4	**Contratensión y servoganancia**	1 Coloque la unidad como se ilustra en la **Fig. 20.** 2 Conecte el voltímetro electrónico CC a base de TP315 (Q306) o terminal 3 CN301 del conector y TP3 (tierra). 3 Conecte el interruptor de la corriente y apriete el botón de arranque para desviar el brazo del fonocaptor hacia dentro. 4 Desvíe completamente el brazo del fonocaptor a la derecha. Luego, ajuste VR501 de manera que la tensión sea 3.6V. **(Ajuste de servoganancia)** 5 Coloque el brazo del fonocaptor en el centro y asegúrese de que la tensión de salida sea 1.8V. 6 Si la tensión no es 1.8V, afloje el tornillo de fijación de la placa del circuito impreso y mueva la placa a la derecha o izquierda mediante un destornillador de manera que la tensión de salida se haga 1.8V. Después del ajuste, apriete el tornillo de fijación de la placa del circuito impreso. **(Ajuste de desviación)** 
5	**Frecuencia de reloj**	1 Coloque la unidad como se ilustra en la **Fig. 20.** 2 Remueva la cinta del interruptor del gabinete. 3 Conecte TP7 (emisor Q3) a TP326 (púa 14 de IC301) con un cordón con presilla o algo parecido. 4 Conecte el oscilloscopio o el contador de frecuencia a TP316 (púa 4 de IC301). 5 Conecte el interruptor de la corriente. 6 Ajuste VR301 de manera que el ciclo de forma de onda de salida sea 40μs ± 2μs. También, ajuste VR301 de manera que la frecuencia de salida sea 25 kHz ± 1.25 kHz.  Frequencia: 25 kHz ± 1.25 kHz
6	**Velocidad rotacional**	1 Coloque la unidad como se ilustra en la **Fig. 20.** 2 Toque un disco de 17 cm. 3 Gire VR202 para ajustar la velocidad a la velocidad de régimen (45 r.p.m.) 4 Toque un disco de 30 cm. 5 Gire VR201 para ajustar la velocidad a la velocidad de régimen (33-1/3 r.p.m.) **Nota: Asegúrese de ajustar a 45 r.p.m. primero.** 

■ REPLACEMENT PARTS LIST...Electric Parts

Notes: 1. Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.
2. Important safety notice: Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
3. Bracketed indications in Ref. No. columns specify the area. Parts without these indications can be used for all areas.
4. The "S" mark is service standard parts and may differ from production parts.

Areas

* [E] is available in Switzerland and Scandinavia.
* [EK] is available in United Kingdom.
* [XL] is available in Australia.
* [EG] is available in F.R. Germany.
* [EB] is available in Belgium.
* [EF] is available in France.
* [XA] is available in Southeast Asia, Oceania, Africa, Middle Near East and Central South America.
* [EH] is available in Holland.
* [Ei] is available in Italy.
* [EC] is available in Czechoslovakia.

Ref. No.		Part No.	Part Name & Description
INTEGRATED CIRCUITS			
IC101		AN6636	IC, Drive
IC301		MN1421FPB	IC, Micro Computer
IC401		AN6554	IC, Operation Amplifier
TRANSISTORS			
Q1		2SD549	Transistor, Regulator
Q2		2SD636	Transistor, Regulator
Q3		2SD638	Transistor, Regulator
Q101, 102		2SD636	Transistor, Regulator & Switching
Q201		2SA1015–Y	Transistor, Switching
Q301 ~ 303		2SD636	Transistor, Switching
Q304		2SD892	Transistor, Cueing Control
Q305, 307		2SB641	Transistor, Switching
Q306		2SD636	Transistor, V/I Converter
Q308, 309		2SD636	Transistor, Wave form Shaping
Q310		2SB641	Transistor, Wave form Shaping
Q401, 402		2SD592NC–R	Transistor, Tonearm Motor Control
Q403, 404		2SD638	Transistor, Tonearm Motor Control
DIODES			
D1	⚠	SVDSIRBA20Z	Rectifier
D2	S	MA1056	Diode
D301		MA1075A	Diode
D302		SVDPR5531K	Light Emitting Diode
D303 ~ 306	S	MA162A	Diode
D501	S	MA162A	Diode
D502		SVDPR3432S	Light Emitting Diode
PHOTO INTERRUPTERS			
PC501		ON1262	Photo Interrupter
PC601		ON1261	Photo Interrupter
RELAY			
RL501		SFDYAW6945	Relay, Muting
SWITCHES			
S1	⚠	SFDSC05N08	Switch, Power
S301		SFDSC05N01	Switch, Record Detector
S302 ~ 305		EVQQJR02K	Switch, Start, Stop, Repeat & Cueing
S306		SFDSHSW0699	Switch, Speed Select
S601		SFDSD2MSL–C	Switch, Rest
S701		SFDSC05N01	Switch, Disc Size Selector
S702		SFDSC05N02	Switch, Rest
S901 [XA] only	⚠	SFDSHXW225–2	Switch, Voltage Adjuster
VARIABLE RESISTORS			
VR201, 202		EVNM6AA00B24	Speed Adjustment, 20kΩ (B)
VR301		EVNK6JA00B24	Clock Frequency Adjustment, 20kΩ (B)
VR501		EVNK6JA00B53	Servo Gain Adjustment, 5kΩ (B)
FUSE			
F1 [XA]	⚠	XBA2C02T1B	Fuse, T200mA 250V
F1 [Other Areas]	⚠	XBA2C06T1B	Fuse, T630mA 250V
F2 [XA] only	⚠	XBA2C06T1B	Fuse, T630mA 250V
THERMISTER			
R504		ERTD2FFK251S	Thermister
HALL ELEMENT			
H1, 2		OH–001	Hall Element, Turntable Position Detector
POWER TRANSFORMER			
T1 [EK, XL]	⚠	SLT48DT4E	Power Transformer
T1 [XA]	⚠	SLT57DTL1A	Power Transformer
T1 [Other Areas]	⚠	SLT48DT3E	Power Transformer

Ref. No.		Part No.	Part Name & Description
RESISTORS			
R1	S	ERD25FJ472	Carbon, 1/4W, 4.7kΩ, ± 5%
R2	S	ERD25FJ331	Carbon, 1/4W, 330Ω, ± 5%
R3	S	ERD25FJ152	Carbon, 1/4W, 1.5kΩ, ± 5%
R4, 5	S	ERD25FJ332	Carbon, 1/4W, 3.3kΩ, ± 5%
R6	S	ERD25FJ330	Carbon, 1/4W, 33Ω, ± 5%
R101	S	ERX1ANJ2R7	Metal Oxide, 1W, 2.7kΩ, ± 5%
R102	S	ERD25FJ270	Carbon, 1/4W, 27Ω, ± 5%
R103	S	ERD25FJ182	Carbon, 1/4W, 1.8kΩ, ± 5%
R104	S	ERD25FJ332	Carbon, 1/4W, 3.3kΩ, ± 5%
R106	S	ERD25FJ562	Carbon, 1/4W, 5.6kΩ, ± 5%
R201	S	ERD25FJ102	Carbon, 1/4W, 1kΩ, ± 5%
R202	S	ERD25TJ153	Carbon, 1/4W, 15kΩ, ± 5%
R203	S	ERD25FJ102	Carbon, 1/4W, 1kΩ, ± 5%
R204	S	ERD25TJ153	Carbon, 1/4W, 15kΩ, ± 5%
R205, 206	S	ERD25TJ104	Carbon, 1/4W, 100kΩ, ± 5%
R207	S	ERO25CKF2702	Metal Film, 1/4W, 27kΩ, ± 5%
R208	S	ERD25FJ562	Carbon, 1/4W, 5.6kΩ, ± 5%
R209	S	ERO25CKF8202	Metal Film, 1/4W, 82kΩ, ± 1%
R210	S	ERD25FJ471	Carbon, 1/4W, 470Ω, ± 5%
R211	S	ERD25FJ472	Carbon, 1/4W, 4.7kΩ, ± 5%
R212	S	ERD25TJ333	Carbon, 1/4W, 33kΩ, ± 5%
R301	S	ERD25FJ103	Carbon, 1/4W, 10kΩ, ± 5%
R302, 303	S	ERD25FJ472	Carbon, 1/4W, 4.7kΩ, ± 5%
R304, 305	S	ERD25FJ472	Carbon, 1/4W, 4.7kΩ, ± 5%
R306	S	ERD25FJ102	Carbon, 1/4W, 1kΩ, ± 5%
R307	S	ERD25FJ472	Carbon, 1/4W, 4.7kΩ, ± 5%
R308	S	ERD25FJ331	Carbon, 1/4W, 330Ω, ± 5%
R310	S	ERD25FJ562	Carbon, 1/4W, 5.6kΩ, ± 5%
R312, 313	S	ERD25TJ333	Carbon, 1/4W, 33kΩ, ± 5%
R314, 315	S	ERD25TJ333	Carbon, 1/4W, 33kΩ, ± 5%
R316	S	ERD25TJ333	Carbon, 1/4W, 33kΩ, ± 5%
R317	S	ERD25FJ272	Carbon, 1/4W, 2.7kΩ, ± 5%
R318, 319	S	ERD25FJ332	Carbon, 1/4W, 3.3kΩ, ± 5%
R320	S	ERD25FJ272	Carbon, 1/4W, 2.7kΩ, ± 5%
R321, 322	S	ERD25FJ331	Carbon, 1/4W, 330Ω, ± 5%
R323	S	ERD25FJ562	Carbon, 1/4W, 5.6kΩ, ± 5%
R324	S	ERD25TJ223	Carbon, 1/4W, 22kΩ, ± 5%
R325	S	ERD25FJ103	Carbon, 1/4W, 10kΩ, ± 5%
R326	S	ERD25FJ222	Carbon, 1/4W, 2.2kΩ, ± 5%
R327	S	ERD25TJ223	Carbon, 1/4W, 22kΩ, ± 5%
R328	S	ERD25TJ473	Carbon, 1/4W, 4.7kΩ, ± 5%
R329, 330	S	ERD25FJ332	Carbon, 1/4W, 3.3kΩ, ± 5%
R331	S	ERD25FJ102	Carbon, 1/4W, 1kΩ, ± 5%
R332	S	ERD25FJ562	Carbon, 1/4W, 5.6kΩ, ± 5%
R333	S	ERD25FJ152	Carbon, 1/4W, 1.5kΩ, ± 5%
R334	S	ERD25FJ222	Carbon, 1/4W, 2.2kΩ, ± 5%
R335	S	ERD25TJ104	Carbon, 1/4W, 100kΩ, ± 5%
R336	S	ERD25FJ682	Carbon, 1/4W, 6.8kΩ, ± 5%
R337	S	ERD25TJ273	Carbon, 1/4W, 27kΩ, ± 5%
R338	S	ERD25FJ222	Carbon, 1/4W, 2.2kΩ, ± 5%
R339	S	ERD25TJ123	Carbon, 1/4W, 12kΩ, ± 5%
R340	S	ERD25FJ272	Carbon, 1/4W, 2.7kΩ, ± 5%
R341	S	ERD25FJ222	Carbon, 1/4W, 2.2kΩ, ± 5%
R401	S	ERD25TJ683	Carbon, 1/4W, 68kΩ, ± 5%
R402	S	ERD25TJ683	Carbon, 1/4W, 68kΩ, ± 5%
R403	S	ERD25FJ472	Carbon, 1/4W, 4.7kΩ, ± 5%
R404	S	ERD25FJ122	Carbon, 1/4W, 1.2kΩ, ± 5%
R405	S	ERD25FJ222	Carbon, 1/4W, 2.2kΩ, ± 5%
R406	S	ERD25FJ102	Carbon, 1/4W, 1kΩ, ± 5%
R407	S	ERD25TJ224	Carbon, 1/4W, 220kΩ, ± 5%
R408	S	ERD25FJ222	Carbon, 1/4W, 2.2kΩ, ± 5%
R409	S	ERD25FJ102	Carbon, 1/4W, 1kΩ, ± 5%
R410	S	ERD25TJ224	Carbon, 1/4W, 220kΩ, ± 5%
R411	S	ERD25FJ272	Carbon, 1/4W, 2.7kΩ, ± 5%
R412	S	ERD25FJ681	Carbon, 1/4W, 680Ω, ± 5%
R501	S	ERD25FJ331	Carbon, 1/4W 330Ω, ± 5%

Ref. No.		Part No.	Part Name & Description
R502	S	ERD25FJ561	Carbon, 1/4W, 560Ω, ± 5%
R503	S	ERD25FJ221	Carbon, 1/4W, 220Ω, ± 5%
R601	S	ERD25FJ681	Carbon, 1/4W, 680Ω, ± 5%
CAPACITORS			
C1, 2	S ⚠	ECKD1H223PF	Ceramic, 50V, 0.022μF, $^{+100}_{0}$%
C3	S ⚠	ECKD1H223PF	Ceramic, 50V, 0.022μF, $^{+100}_{0}$%
C4	S ⚠	ECEB1VS102	Electrolytic, 35V, 1000μF
C5	S	ECEA1HS100	Electrolytic, 50V, 10μF
C101	S	ECQM1H333JZ	Polyester, 50V, 0.033μF, ± 5%
C102	S	ECEA1ES101	Electrolytic, 25V, 100μF
C103, 104	⚠	ECEA1CN101S	Electrolytic, 16V, 100μF
C105	S	ECEA1CS330	Electrolytic, 16V, 33μF
C106	S	ECKD1H223PF	Ceramic, 50V, 0.022μF, $^{+100}_{0}$%
C201	S	ECQM1H104JZ	Polyester, 50V, 0.1μF, ± 5%
C202	S	ECEA25Z4R7	Electrolytic, 25V, 4.7μF
C203	S	ECQM1H104JZ	Polyester, 50V, 0.1μF, ± 5%

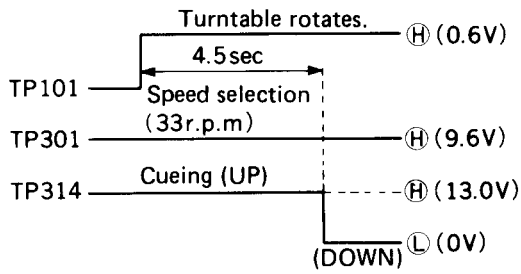
Ref. No.		Part No.	Part Name & Description
C204	S	ECQM1H473JZ	Polyester, 50V, 0.047μF, ± 5%
C205	S	ECQM1H333JZ	Polyester, 50V, 0.033μF, ± 5%
C206	S	ECQM1H224JZ	Polyester, 50V, 0.22μF, ± 5%
C207	S	ECQM1H104JZ	Polyester, 50V, 0.1μF, ± 5%
C208		ECQV05224JZ	TF, 50VDC, 0.22μF, ± 5%
C209	S	ECEA50Z3R3	Electrolytic, 50V, 3.3μF
C210	S	ECKD1H223PF	Ceramic, 50V, 0.022μF, $^{+100}_{0}$%
C211	S	ECKD2H102KB	Ceramic, 500V, 0.001μF, ± 5%
C301	S	ECCD1H101K	Ceramic, 50V, 100μF, ± 5%
C302	S	ECQM1H104KZ	Polyester, 50V, 0.1μF, ± 5%
C304	S	ECEA1AS101	Electrolytic, 10V, 100μF, ± 5%
C305	S	ECKD1H561KB	Ceramic, 50V, 560μF, ± 5%
C306		ECKF1E104ZV	Ceramic, 25V, 0.1μF, $^{+80}_{-20}$%
C401	S	ECQM1H223JZ	Polyester, 50V, 0.022μF, ± 5%
C402	S	ECQM1H223JZ	Polyester, 50V, 0.022μF, ± 5%
C501	S	ECEA1ES101	Electrolytic, 25V, 100μF
C601		ECFB1B104ZRM	Ceramic, 50V, 0.1μF

■ TIMING CHART

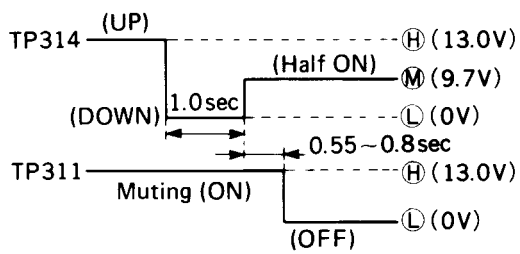
• 30 cm Record

Start operation

* Push the start switch.

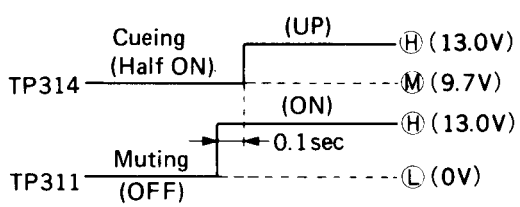


Cueing down operation



Half ON : play mode

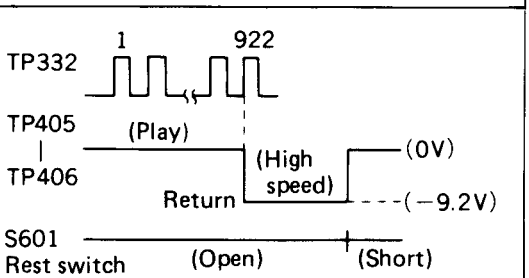
Cueing up operation



Manual search operation

- When start button is pushed in cueing up mode, the voltage between TP405 and TP406 becomes 4.0V. (Medium speed)
- When stop button is pushed in cueing up mode, the voltage between TP405 and TP406 becomes –4.0V. (Medium speed).

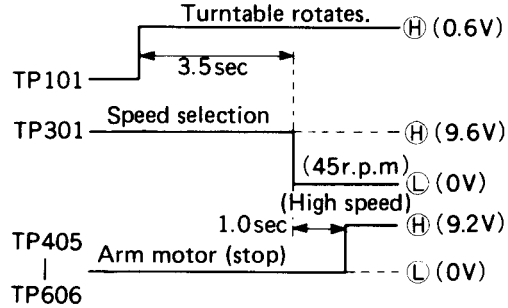
Return operation



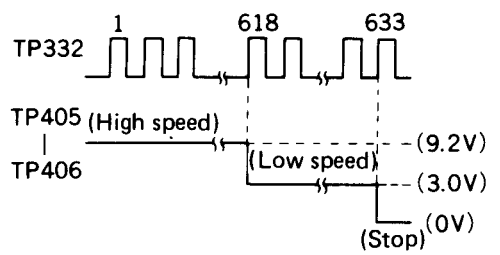
• 17 cm Record

Start operation

* Push the start switch.



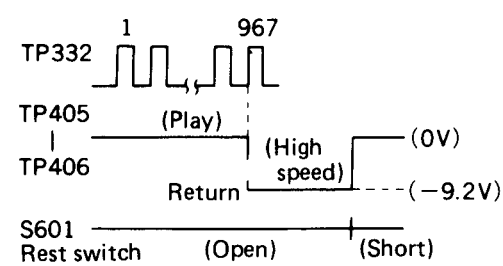
Lead-in operation



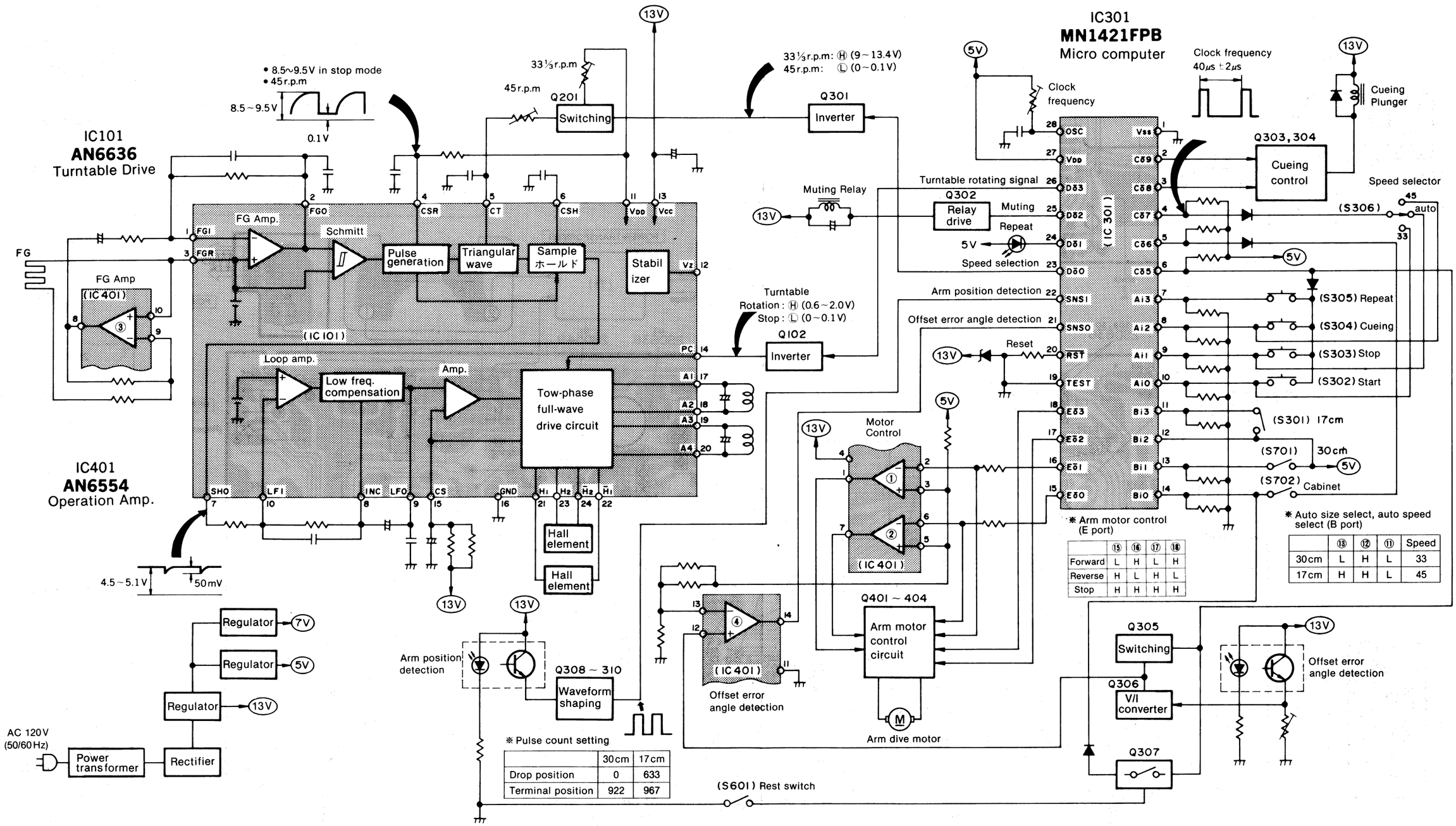
Cueing operation

Same as for 30 cm record.

Return operation

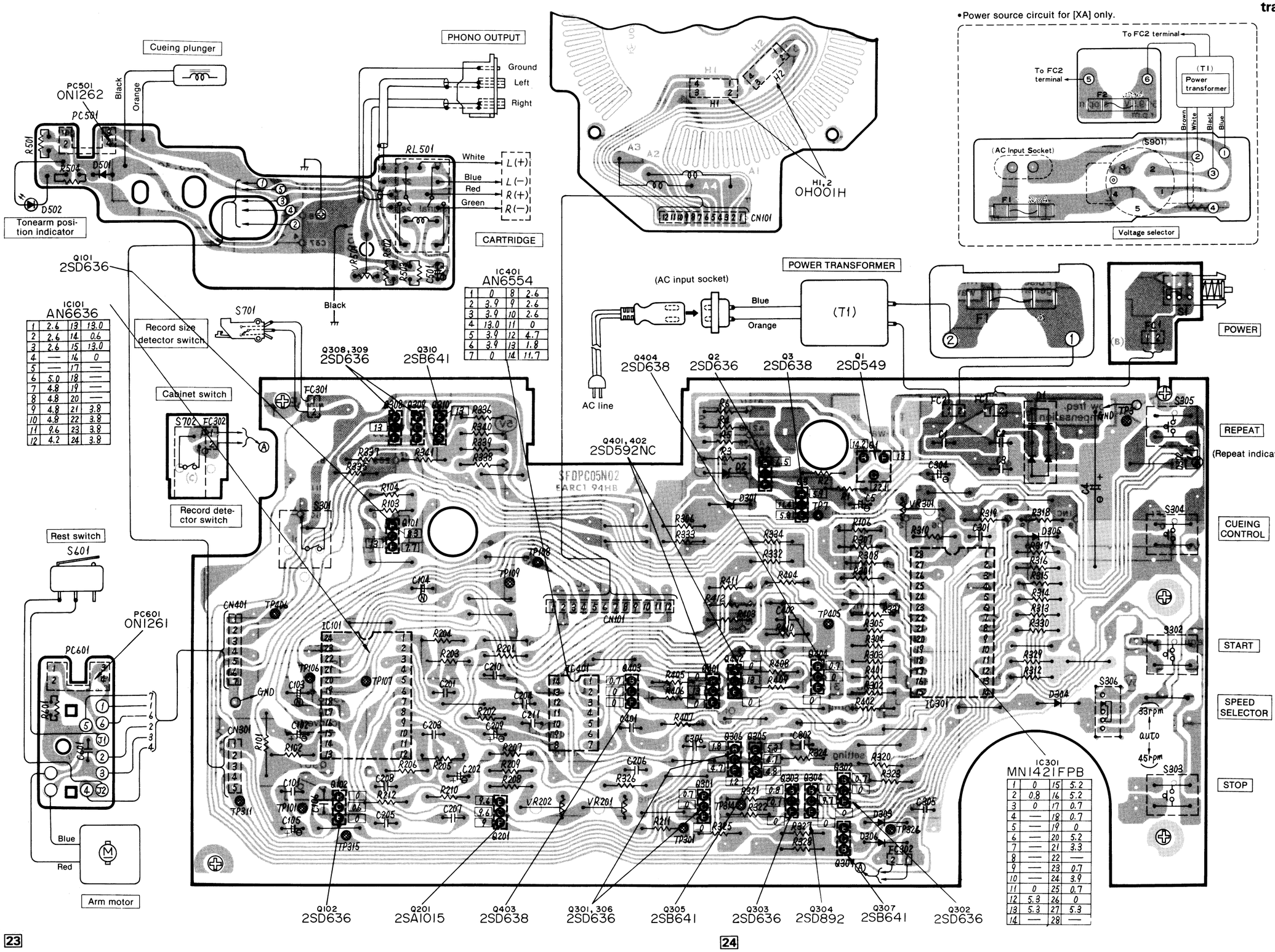


■ BLOCK DIAGRAM



■ CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM

Ground (Earth) lines



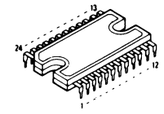
IC101 AN6636			
1	2.6	13	13.0
2	2.6	14	0.6
3	2.6	15	13.0
4	—	16	0
5	—	17	—
6	5.0	18	—
7	4.8	19	—
8	4.8	20	—
9	4.8	21	3.8
10	4.8	22	3.8
11	9.6	23	3.8
12	4.2	24	3.8

IC401 AN6554			
1	0	8	2.6
2	3.9	9	2.6
3	3.9	10	2.6
4	13.0	11	0
5	3.9	12	4.7
6	3.9	13	1.8
7	0	14	11.7

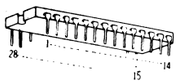
IC301 MN1421FPB			
1	0	15	5.2
2	0.8	16	5.2
3	0	17	0.7
4	—	18	0.7
5	—	19	0
6	—	20	5.2
7	—	21	3.3
8	—	22	—
9	—	23	0.7
10	—	24	3.9
11	0	25	0.7
12	5.3	26	0
13	5.3	27	5.3
14	—	28	—

• Terminal guide of transistors, diodes and IC's

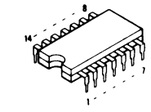
AN6636



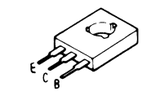
MN1421FPB



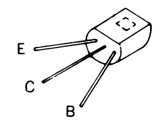
AN6554



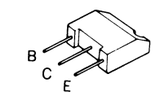
2SD549



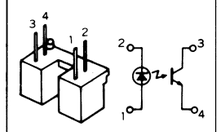
2SA1015, 2SD592NC
2SD892



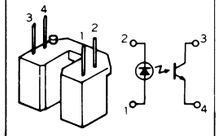
2SB641, 2SD636
2SD638



ON1261



ON1262

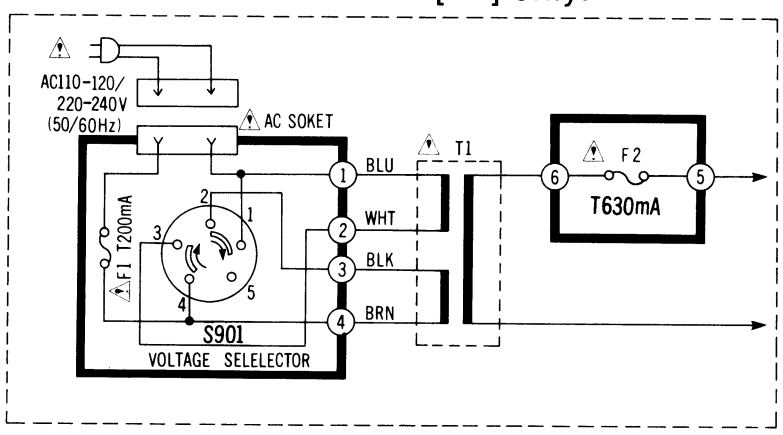


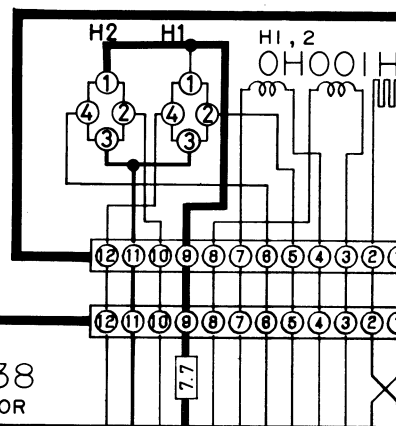
■ SCHEMATIC DIAGRAM (This schematic diagram may be modified at any time with the development of new technology.)

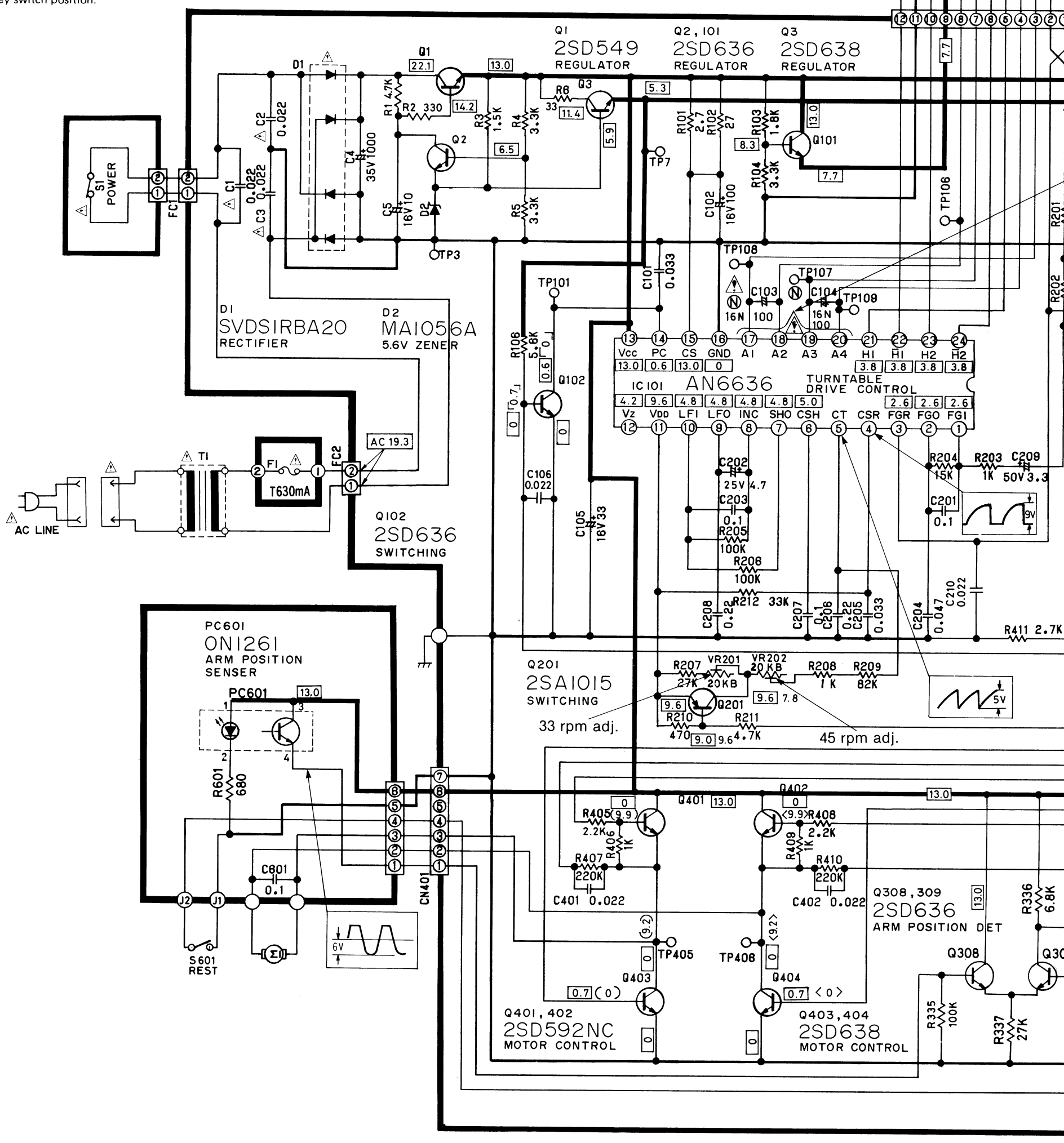
Notes:

1. **S1** : On/off switch in "**on**" position.
2. **S301** : Record detector switch in "**off**" position. (It is detects the record on the turn table.)
3. **S302** : Start switch in "**off**" position. (It is not pushed.)
4. **S303** : Stop switch in "**off**" position. (It is not pushed.)
5. **S304** : Cueing control switch in "**off**" position. (It is not pushed.)
6. **S305** : Repeat switch in "**off**" position. (It is not pushed.)
7. **S306** : Speed selector switch in "**auto**" position.
   33 rpm ◄► auto ◄► 45 rpm
8. **S601** : Rest switch in "**off**" position. (Tonearm is off the rest position.)
9. **S701** : Record size detector switch in "**on**" position. (17 cm record is on the turntable.)
10. **S702** : Cabinet switch in "**on**" position. (Upper cabinet is closed.)
11. **S901** : Voltage selector in "**110 – 120V**" position.
    110 – 120V ◄► 220 – 240V
12. Indicated voltage values are the standard values for the measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester or the set measured.
    * ▭ is the voltage at 45 rpm.
    * 〔 〕 is the voltage at 33 rpm.
    * ( ) is the voltage when tonearm is in lead-in mode.
    * < > is the voltage when tonearm is in return mode.
    * ⌜ ⌟ is the voltage when turntable is in stop.
    * (( )) is the voltage when tonearm is at the rest position.
    * ▭ is the terminal that changes according to 5V pulse waveform or key switch position.
13. ▬▬ Positive voltage lines.
14. Important safety notice:
    Components identified by ⚠ mark have special characteristics important for safety.
    When replacing any of these components, use only manufacturer's specified parts.

• Power source circuit fot [XA] only.







PC501
ON1262

D501
MA150

D502
SVDPR3432S
ARM INDICATOR

Q301, 302
2SD636
SWITCHING

D301
MA1075A
7.5V ZENER

D302
SVDPR553IK
REPEAT IND

Q303
2SD636
CUEING CONTROL

Q304
2SD892
CUEING CONTROL

D303 ~306
MA150
SWITCHING

Q305, 310
2SB641
SWITCHING. ARM POSITION DETECT

Q306
2SD636
▽/I CONVERTER

Q307
2SB641
SWITCHING

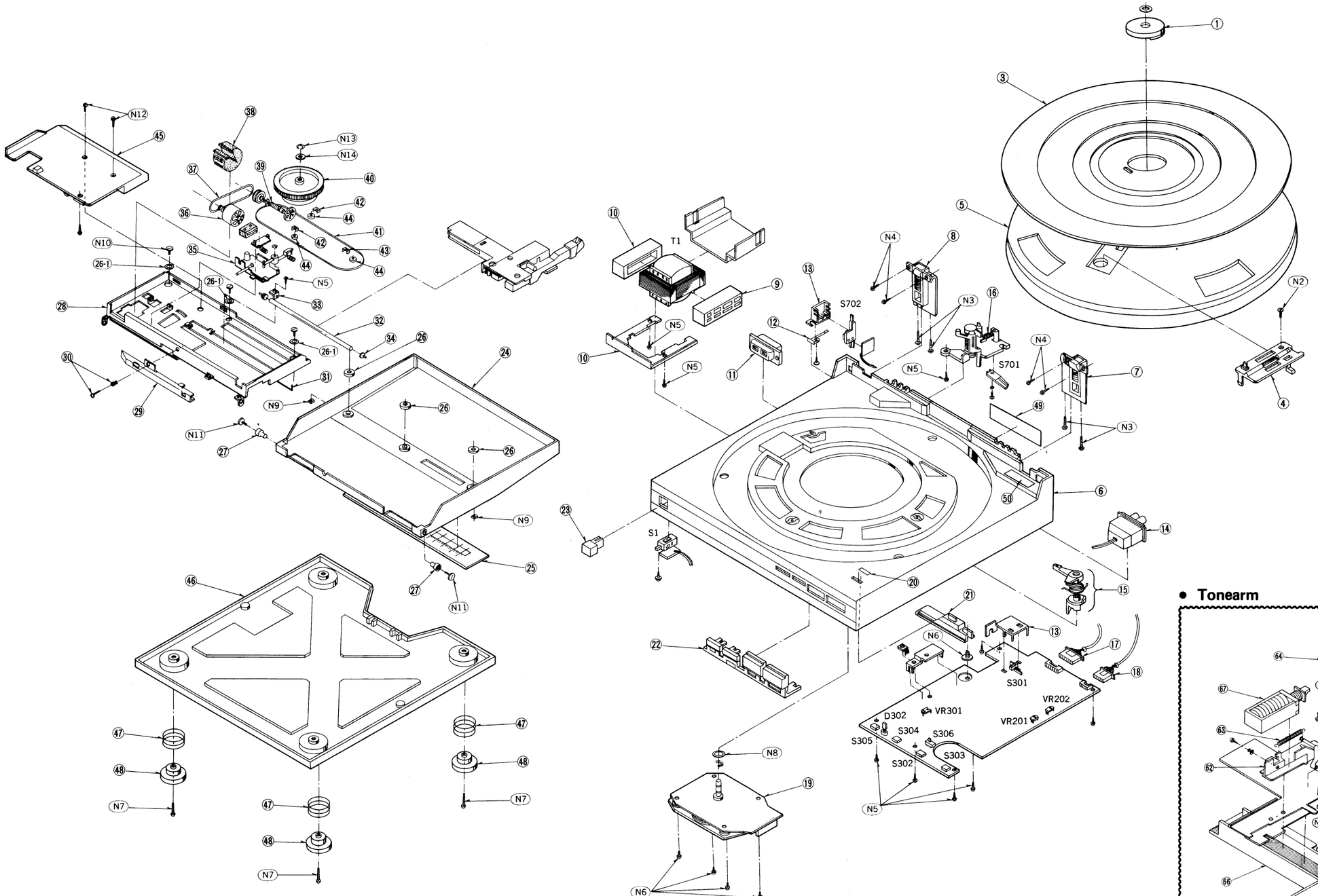
IC401 AN6554 OPERATION AMP.
OUT | − IN + | GND | + IN − | OUT
2.6 | 2.6 | 2.6 | 0 | 4.7 | 1.8 | 11.7
0 | 3.9 | 3.9 | 13.0 | 3.9 | 3.9 | 0
OUT | − IN + | Vcc | + IN − | OUT

IC301 MN1421FPB MICRO COMPUTER
EO0 EO1 EO2 EO3 TEST RST SNSO SNSI DO0 DO1 DO2 DO3 VDD OSC
5.2 | 5.2 | 0.7 | 0.7 | 0 | 5.2 | 3.3 | 0.7 | 3.9 | 0.7 | 0 | 5.3
BI0 BI1 BI2 BI3 AI0 AI1 AI2 AI3 CO5 CO6 CO7 CO8 CO9 Vss
— | 5.3 | 5.3 | 0 | — | — | — | — | — | — | — | 0 | 0.8 | 0

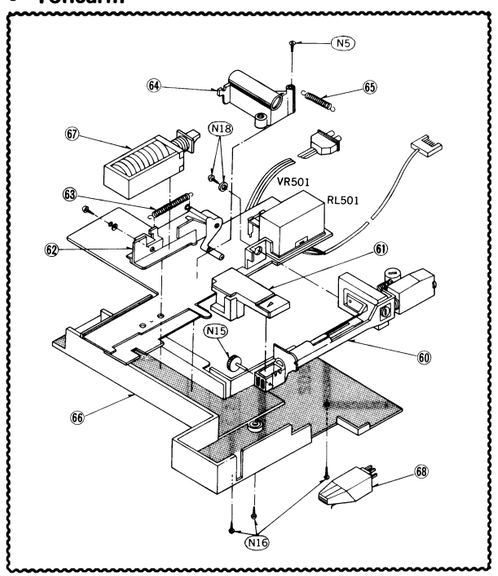
TP106-TP108, TP107-TP109 4V
5V
9V
6V

CARTRIDGE
WHT
BLU
RED
GRN
R⊖
R⊕
L⊖
L⊕
OUT
Rch
Lch
GND
CUEING PLUNGER
Servo gain adj.
clock frequency adj.
S301 30CM
S302 S303 S304 S305 REP
S306 SPEED
AUTO
45
33
FC301
FC302
S701 30CM
S702 CABI.
CN101
CN301
TP106
TP301
TP311
TP314
TP315
TP326
TP328
TP332
TP316

■ EXPLODED VIEWS



- **Tonearm**



■ REPLACEMENT PARTS LIST.....Cabinet & Chassis Parts

Notes: 1. Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.
2. Important safety notice: Components identified by mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
3. Bracketed indications in Ref. No. columns specify the area. Parts without these indications can be used for all areas.
4. The "S" mark is service standard parts and may differ from production parts.

Areas

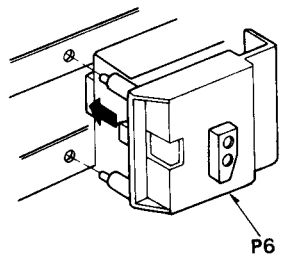
* [E] is available in Switzerland and Scandinavia.
* [EK] is available in United Kingdom.
* [XL] is available in Australia.
* [EG] is available in F.R. Germany.
* [EB] is available in Belgium.
* [EF] is available in France.
* [XA] is available in Southeast Asia, Oceania, Africa, Middle Near East and Central South America.
* [EH] is available in Holland.
* [Ei] is available in Italy.
* [EC] is available in Czechoslovakia.

Ref. No.		Part No.	Part Name & Description
CABINET and CHASSIS PARTS			
1		SFWEC05N01	45 Adaptor
3		SFTGC05N01	Turntable, Mat
4		SFUMC05N11A	Record Detector
5		SFTEC05N01A	Turntable
6		SFACC05N01	Cabinet
7		SFATC05N01A	Hinge, Right Side
8		SFATC05N02A	Hinge, Left Side
9		SFGCC05X01	Cushion Rubber, Power Transformer
10		SFUPC05N01	Plate, Power Transformer
11 [Other Areas]	⚠	SFDJHSC0492	Socket, AC Power
11 [XA]	⚠	SFDJHSC04912	Socket, AC Power
12		SFQPC05N01	Spring
13		SFUMC05N15	Cover, Switch
14		SFDHC05N02E	Socket, Input
15		SFUMC05N13E	Record Detector Lever
16		SFUMC05N07A	Record Side Detection Lever
17		SFDJC05N02E	Connector Ass'y (7P)
18		SFDJC05N03E	Connector Ass'y (5P)
19		SFMZC05N01Z	Stator Frame Ass'y
20		SFKKC05N02	Lable, Speed Selector
21		SFKTC05N02	Knob, Speed Selector
22		SFKTC05N01E	Knob, Start, Stop Ass'y
23		SBC425	Button, Power
24		SFADC05N01E	Dust Cover
25		SFKKC05N01	Surface Plate
26		SFGCC05N03	Cushion Rubber (A)
26–1		SFGCC05N04	Cushion Rubber (B)
27		SFGCC05N06	Cushion Rubber (C)
28		SFUKC05N01A	Arm Drive Plate
29		SFUMC05N20	Guide, Lead Wire
30		SFUZC05N03	Latch
31		SFUZC05N01	Rod, Rest Switch
32		SFXJC05N01	Guide Rail
33		SFUPC05N03	Plate, Guide Rail
34		SFGCC05N05	Cushion Rubber (D)
35		SFUMC05N02E	Plate, Rest Switch
36		SFMHC05N01E	Arm Drive Motor
37		SFGBC10–01	Belt, Arm Drive (With Pulley)
38		SFGCC05N01	Cushion Rubber (E)
39		SFUMC05N16A	Worm Ass'y
40		SFUMC05N17	Arm Drive Wheel
41		SFUZC05N02E	Arm Drive Rope Ass'y
42		SFUMC07–22	Stopper, Pulley (A)
43		SFUMC05N23	Stopper, Pulley (B)
44		SFUMC05N22	Pulley
45		SFUMC05N01	Cover, Rest Switch Plate
46		SFAUC05N01	Bottom, Board
47		SFQCC05N01	Spring, Audio Insulator
48		SFGAC05N02E	Audio Insulator
49 [E]		SFNNC05S01	Name Plate
49 [EK, XL]		SFNNC05G01	Name Plate
49 [XA]		SFNNC05X01	Name Plate
49 [Other Areas]		SFNNC05R01	Name Plate
50		SFNHC05X01	Lable

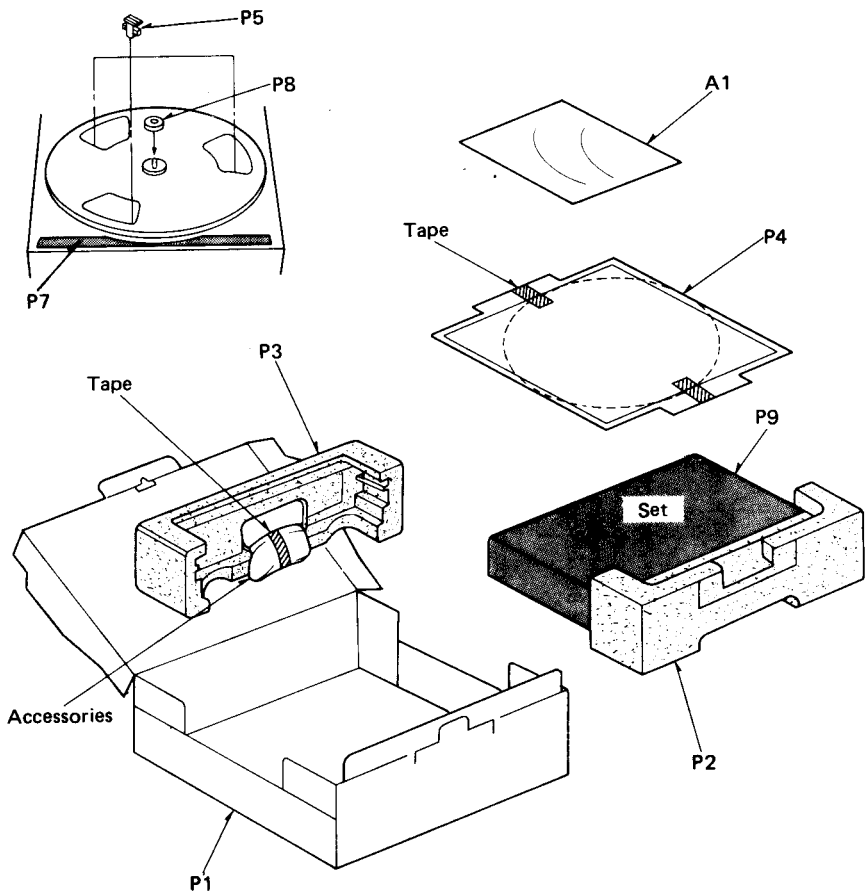
Ref. No.		Part No.	Part Name & Description
TONEARM PARTS			
60		SFPAM00501A	Tonearm
61		SFPAB00501E	Tonearm Position Indicator
62		SFPJL00501E	Lift Plate Ass'y
63		SFPSP00504	Spring, Lift
64		SFPAB00502	Bracket, Tonearm
65		SFPSP00503	Spring, Lead Wire
66		SFPCS00501	Cover, Arm Base
67		SFDZC05N01	Cueing Plunger
68	★	EPC–P24S	Cartridge
	★	EPS–24CS	Stylus
SCREWS, WASHERS and CIRCLIPS			
N2	S	XTN3+6BFN	Screw, Tapping, ⊕ 3 x 6
N3	S	XTV3+20BFN	Screw, Tapping, ⊕ 3 x 20
N4	S	XTV3+6BFZ	Screw, Tapping, ⊕ 3 x 6
N5	S	XTV3+8BFZ	Screw, Tapping, ⊕ 3 x 8
N6		XTW3+10Q	Screw, Tapping, ⊕ 3 x 10
N7		XTW3+20QFYR	Screw, Tapping, ⊕ 3 x 20
N9		XNC3HS	Nut, ϕ3
N10		SFXGC05N02	Screw
N11		SFXGC05N03	Screw
N12	S	XTV3+20BFZ	Screw, Tapping, ⊕ 3 x 20
N13		SFXW551D2	Washer
N14		XUB3FY	Circlip, ϕ3
N15		SFPEV00502	Screw
N16	S	XTV3+10BFZ	Screw, Tapping, ⊕ 3 x 10
N17	S	XWC3B	Washer, ϕ3
N18	S	XSN3+5S	Screw, Tapping, ⊕ 3 x 5
ACCESSORIES			
A1 [E]		SFNUC05S01	Instructions Book, Printed Matter
A1 [EK]		SFNUC05K01	Instructions Book, Printed Matter
A1 [Other Areas]		SFUNC05X01	Instructions Book, Printed Matter
A1 [EG]		SFNUC05G01	Instructions Book, Printed Matter
A1 [EF]		SFNUC05F01	Instructions Book, Printed Matter
A2		SFDHC05N01	Phono Cord
A3		SFDLC05N01	Ground Wire
A4 [EK]	S ⚠	RJA43Z	AC Cord
A4 [XL]	S ⚠	RJA26Z	AC Cord
A4 [Other Areas]	S ⚠	RJA20Z	AC Cord
A5 [XA Only]	⚠	SFDKi19118	2P Plug
A6		SFUMCD05N24	Adapter, 25 cm Record
PACKING PARTS			
P1 [EF Only]		SFHPC05C01	Carton Box
P1 [Other Areas]		SFHPC05M01	Carton Box
P2		SFHHC05N01	Pad, Front
P3		SFHHC05N02	Pad, Rear
P4		SFHDC05M01	Sheet, Turntable
P5		SFHKC05N01	Screw, Clamp
P6		SFHKC05N02	Spacer, Tonearm
P7		SFHSC05N01	Spacer, Dust Cover
P8		SFHSC05N02	Stopper, 45 Adaptor
P9		SFYH45X50	Polyethylene, Bag, Unit
P10		SFYH15X20	Polyethylene Bag, Accessory
P11		SFYF05A06	Polyethylene Bag, 25cm Record Adapter

■ PACKINGS

1. Set the tonearm to the start position.
2. Attach the arm spacer.



3. Attach the clamper, 45-adaptor holder and dust cover spacer.
4. Stick the protection sheet on the top of dust cover.
5. Put the set into the protection bag and then pack it as illustrated.



Printed in Japan
81129650Ⓗ AM/YW

ORDER NO. DAD8401006 2S9

Service Manual

Supplement-1

Direct Drive Automatic Turntable System

SL-5/(K)

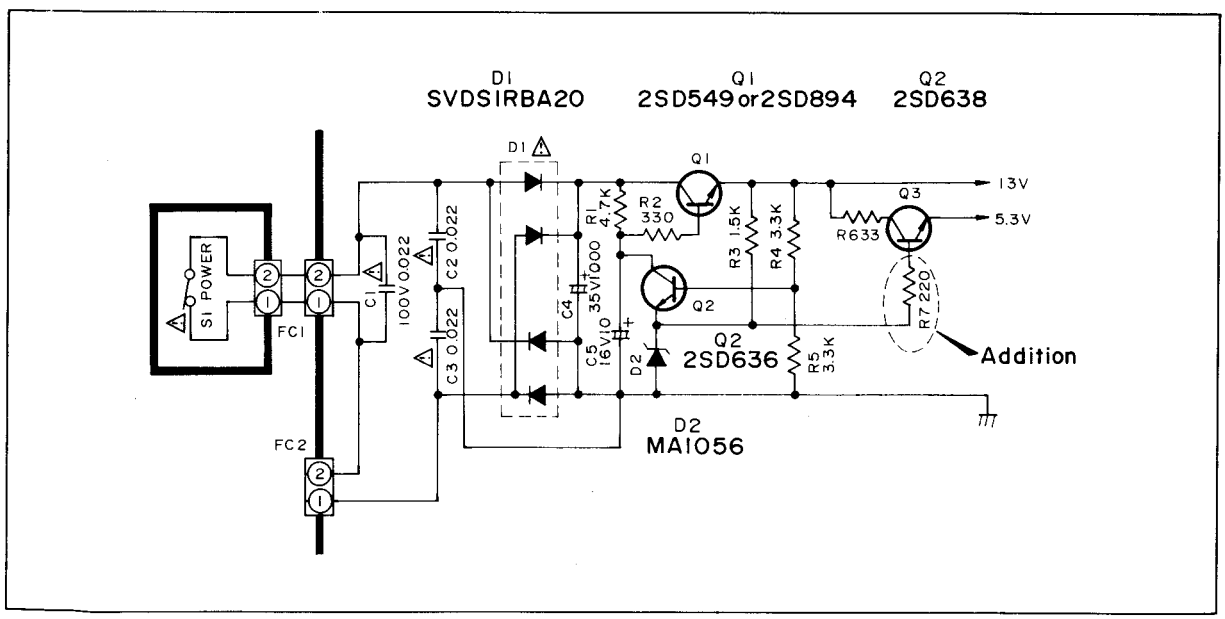
Please use this manual together with the service manual for Model No. SL-5, Order No. SD81112090C2

Notes:
- ★ The circuit of SL-5 has been changed for the improvement of performance. The changes are mentioned in this supplement. Please keep this point in mind when servicing.
- ★ This supplement should be filed with the service manual for Model No. SL-5. (Order No. SD81112090C2.)

CHANGES

■ SCHEMATIC DIAGRAMS

•Power source circuit



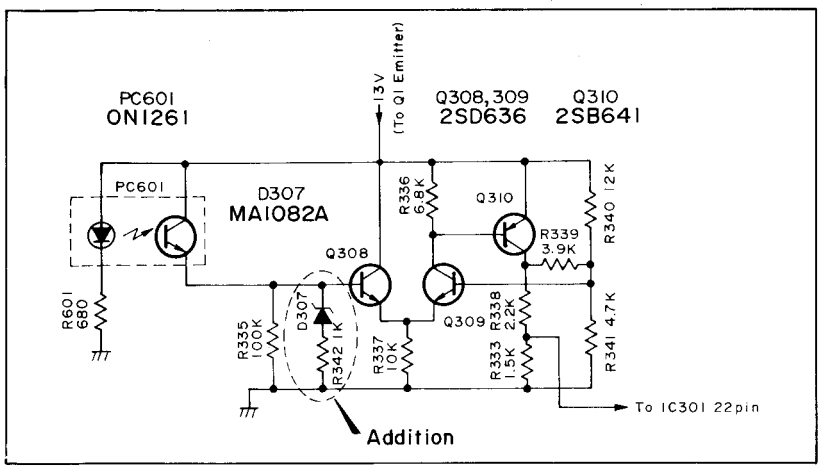
Note:
Regarding regulator transistor Q1, 2SD549 or 2SD894 is used.
In SL-5, 2SD549 is interchangeable with 2SD894. The supply of replacement parts is made by 2SD549.

Technics

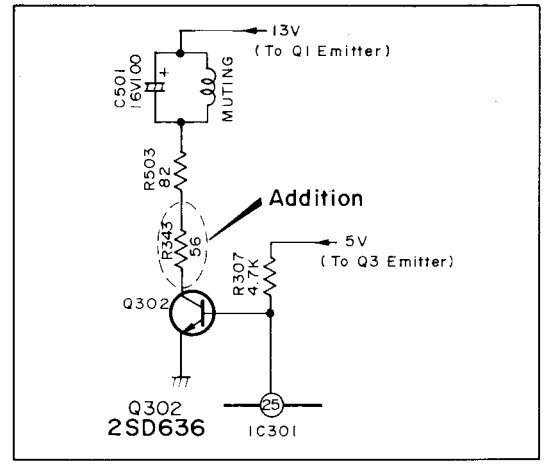
Panasonic Tokyo
Matsushita Electric Industrial Co., Ltd.
1-2, 1-chome, Shibakoen, Minato-ku, Tokyo 105 Japan

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

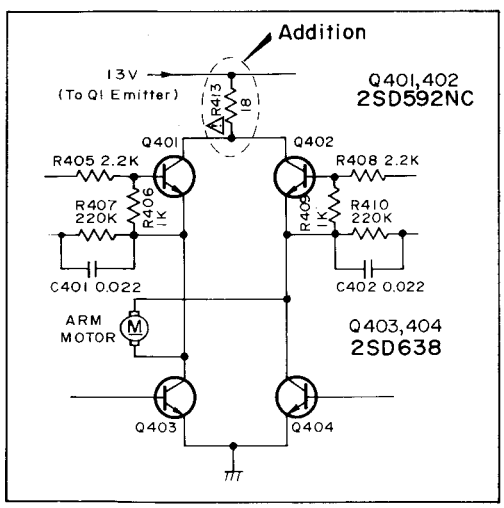
•Arm position detection circuit

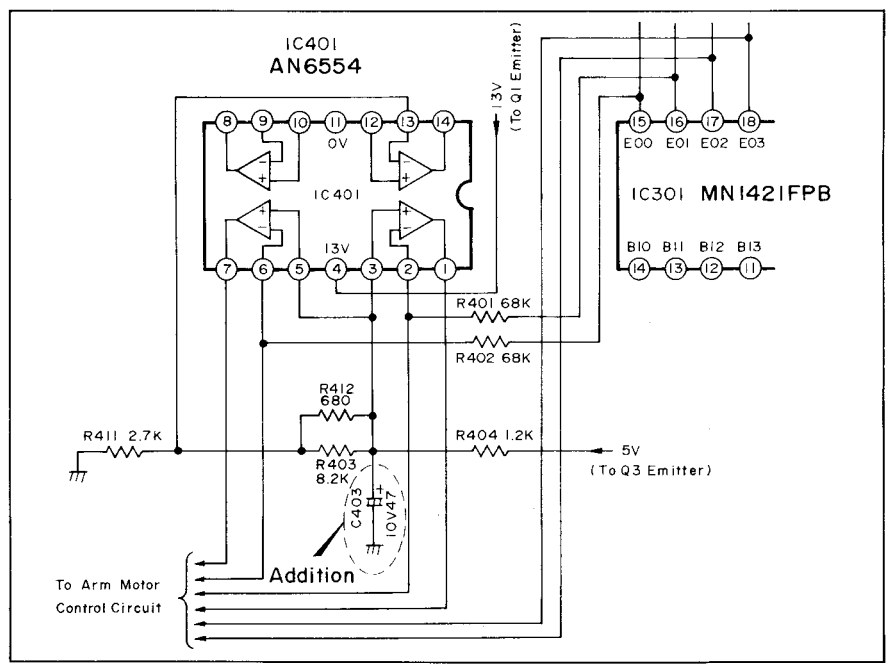


•Muting circuit

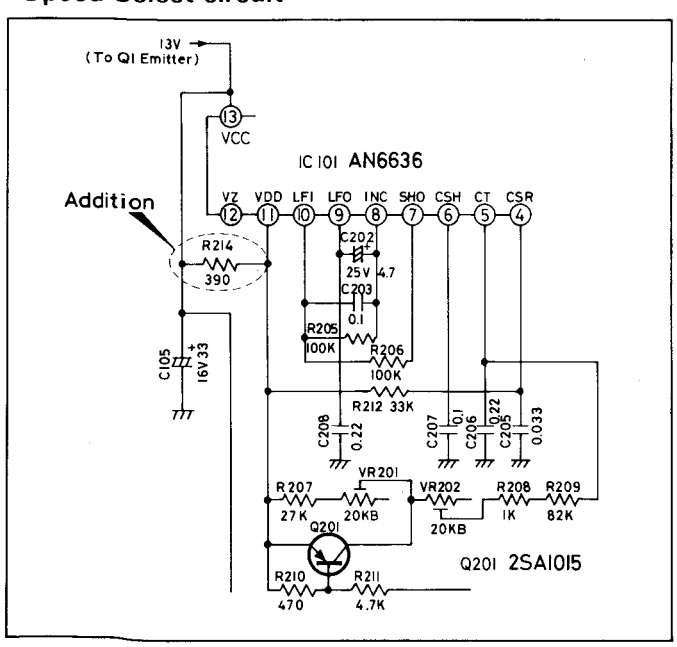


•Arm motor control circuit





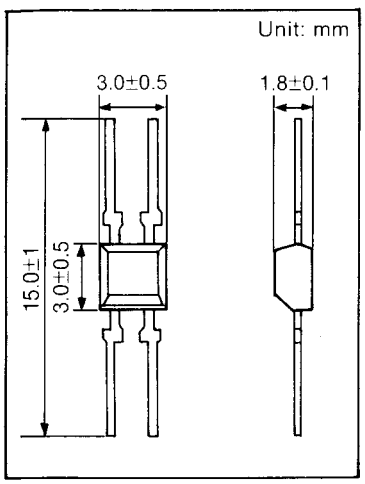
•Speed select circuit



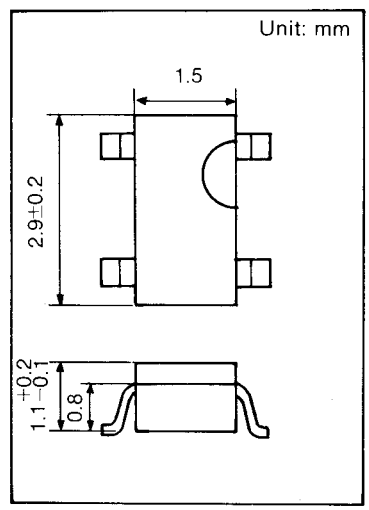
■ SHAPE OF HALL ELEMENT

★ Regarding the Hall elements for turntable position detection, OH-001 has been changed to OH-002 in the course of manufacture. Note that OH-001 is not interchangeable with OH-002. (They are different in shape and size.)

•OH-001



•OH-002



■ REPLACEMENT PARTS LIST

Notes: 1. This replacement parts list contains the main parts changed from those of former types.
2. The "Ⓢ" mark is service standard parts and may differ from production parts.
3. Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

Ref. No.	Change of Part No. SL-5 (OLD) → SL-5 (NEW)		Part Name & Description	Per Set (Pcs.)	Remarks
TRANSISTOR					
Q1	2SD549	2SD549 2SD894*	Transistor, Regulator	1	
*2SD894 is temporarily used as a substitute of 2SD549. 2SD549 has supplied for the Replacement Parts.					
DIODE					
D307	Addition	MA1082	Zener Diode, 8.2V Constant Voltage	1	
VARIABLE RESISTOR					
VR301	EVNK6JA00B24	EVNK6AA00B54	Clock Freq. Adjustment, 50kΩ (B)	1	
HALL ELEMENT					
H1, 2	OH-001	OH-001 OH-002*	Turntable Position Detector	2	
*OH-001 has been changed to OH-002 in the course of manufacture. Note that OH-001 is not interchangeable with OH-002 when you order this one.					
FUSE					
F1	XBA2C06T1B	XBA2C05T1B	T500mA, 250V	1	⚠

Ref. No.	Change of Part No.		Part Name & Description	Per Set (Pcs.)	Remarks
	SL-5 (OLD) →	SL-5 (NEW)			
RESISTORS					
R7	Addition	ERD25FJ221	Carbon 1/4W, 220Ω, ±5%	1	Ⓢ
R208	ERD25FJ562	ERD25FJ102	Carbon 1/4W, 1kΩ, ±5%	1	Ⓢ
R214	Addition	ERD25FJ391	Carbon 1/4W, 390Ω, ±5%	1	Ⓢ
R302, 303	ERD25FJ472	ERD25FJ102	Carbon 1/4W, 1kΩ, ±5%	2	Ⓢ
R304, 305	ERD25FJ472	ERD25FJ152	Carbon 1/4W, 1.5kΩ, ±5%	2	Ⓢ
R326	ERD25FJ222	ERD25FJ272	Carbon 1/4W, 2.7kΩ, ±5%	1	Ⓢ
R337	ERD25TJ273	ERD25FJ103	Carbon 1/4W, 10kΩ, ±5%	1	Ⓢ
R339	ERD25TJ123	ERD25FJ392	Carbon 1/4W, 3.9kΩ, ±5%	1	Ⓢ
R340	ERD25FJ272	ERD25TJ123	Carbon 1/4W, 12kΩ, ±5%	1	Ⓢ
R341	ERD25FJ222	ERD25FJ472	Carbon 1/4W, 4.7kΩ, ±5%	1	Ⓢ
R342	Addition	ERD25FJ102	Carbon 1/4W, 1kΩ, ±5%	1	Ⓢ
R343	Addition	ERD25FJ560	Carbon 1/4W, 56Ω, ±5%	1	Ⓢ
R403	ERD25FJ472	ERD25FJ822	Carbon 1/4W, 8.2kΩ, ±5%	1	Ⓢ
R413	Addition	ERD2FCG180	Fuse Type Carbon 1/4W, 18Ω, ±5%	1	⚠
R503	ERD25FJ221	ERD25FJ820	Carbon 1/4W, 82Ω, ±5%	1	Ⓢ
CAPACITORS					
C1	ECKD1H223PF	ECQM1223KZ	Polyester, 100V, 0.022μF, ±10%	1	⚠
C103, 104	ECEA1CN101S	ECEA1CN470S	Non-Polar Electrolytic, 16V, 47μF	2	Ⓢ ⚠
C210	ECKD1H223PF	ECKD2H102KB	Ceramic, 500V, 0.001μF, ±10%	1	
C301	ECCD1H101K	ECCD1H680K	Ceramic, 50V, 68PF, ±10%	1	Ⓢ
C403	Addition	ECEA1AS470	Electrolytic, 10V, 47μF	1	Ⓢ

Printed in Japan
84019000ⓈAM

ORDER No. SD82092311C2

Service Manual

Direct Drive Automatic Turntable System

SL-5 (W)

[E]

SL-5 (R)

[E]

SL-5 (B)

[E]

* The cabinet and Panel are available in white color, red color and blue types.
* The white, red and blue types model is provided with (W), (R), (B) in the Service Manual.

Area

* [E] is available in Scandinavia and Switzerland.

Please use this manual togrther with the service manual for Model No. SL-5 [E] Order No. SD81112090C2.

CHANGES

■ REPLACEMENT PARTS LIST

Ref. No.	Change of Part No. SL-5 [E] (Order No. SD81112090C2) → SL-5 [E] (W), (R), (B)		Description & Pcs.	Remarks
CABINET PARTS				
6	SFACC05N01	SFACC05N03 (White)	Cabinet (1)	
		SFACC05N02 (Red)		
		SFACC05N04 (Blue)		
24	SFADC05N01E	SFADC05N03E (White)	Dust Cover (1)	
		SFADC05N02E (Red)		
		SFADC05N04E (Blue)		
PACKING PARTS				
	Addition	SFHZC05S03 (White)	Label (Carton Box) (1)	
		SFHZC05S01 (Red)		
		SFHZC05S02 (Blue)		

Technics

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

Printed in Japan
8209 500 ® YW

ORDER NO. SD82012105C2

Service Manual

Direct Drive Automatic Turntable System

SL-5(K)

[E], [EG], [EH], [XA]

***The cabinet and dust cover are available in black color and silver types.**
***The black type model is provided with (K) in the Service Manual.**

Areas

* [E] is available in Switzerland and Scandinavia.
* [EG] is available in F.R. Germany.
* [EH] is available in Holland.
* [XA] is available in Southeast Asia, Oceania, Africa, Middle Near East and Central South America.

Please use this manual together with the service manual for Model No. SL-5 Order No. SD81112090C2.

CHANGES

■ REPLACEMENT PARTS LIST

Ref. No.	Change of Part No.		Part Name & Description	Per Set (Pcs.)	Remarks
	SL-5 (ORDER NO. SD81112090C2)	→ SL-5 (K) [E, EG, EH, XA]			
CABINET and CHASSIS PARTS					
6	SFACC05N01	SFACC05S21	Cabinet (Black)	1	
20	SFKKC05N02	SFKKC05N21	Label, Speed Selector	1	
24	SFADC05N01E	SFADC05S21E	Dust Cover (Black)	1	
PACKING PARTS					
P1	SFHPC05C01 [EF] SFHPC05M01 [Other Areas]	SFHPC05M21	Carton Box	1	

Technics

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

Printed in Japan
8201628800 Ⓗ AM

ORDER NO. SD82012106C4

Service Manual

Direct Drive Automatic Turntable System

SL-5

[PA], [PE], [PC]

Areas

* [PA] is available in for East PX.
* [PE] is available in European Military.
* [PC] is available in European Audio Club.

Please use this manual together with the service manual for Model No. SL-5 Order No. SD81112090C2.

CHANGES

■ REPLACEMENT PARTS LIST

Ref. No.	Change of Part No.		Part Name & Description	Per Set (Pcs.)	Remarks
	SL-5 (ORDER NO. SD81112090C2)	SL-5 [PA, PE, PC]			
SWITCH					
S901	SFDSHXW225–2 [XA] only	SFDSHXW225–2	Switch, Voltage Selector	1	
FUSES					
F1	XBA2C02T1B [XA] XBA2C06T1B [Other Areas]	XBA2C02T1B	Fuse, T 200mA 250V	1	
F2	XBA2C06T1B [XA] only	XBA2C06T1B	Fuse, T 630mA 250V	1	
POWER TRANSFORMER					
T1	SLT48DT4E [EK, XL] SLT57DT1E [XA] SLT48DT3E [Other Areas]	SLT57DT1E	Power Transformer	1	
CABINET and CHASSIS PARTS					
11	SFDJHSC04912 [Other Areas] SFDJHSC04912 [XA]	SFDJHSC04912	Socket, AC Power	1	
49	SFNNC05S01 [E] SFNNC05G01 [EK, XL]	SFNNC05P01 [PA, PE]	Name Plate	1	
	SFNNC05X01 [XA] SFNNC05R01 [Other Areas]	SFNNC05P02 [PC]	Name Plate	1	
ACCESSORIES					
A1	SFNUC05S01 [E, EB, EH, EC] SFNUC05G01 [EK, XL] SFNUC05X01 [XA] SFNUC05R01 [EG] SFNUC05F01 [EF] SFNUC05I01 [Ei]	SFNUC05G01	Instructions Book, Printed Matter	1	

Technics

Panasonic Tokyo
Matsushita Electric Industrial Co., Ltd.
1-2, 1-chome, Shibakoen, Minato-ku, Tokyo 105 Japan

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

Ref. No.	Change of Part No.		Part Name & Description	Per Set (Pcs.)	Remarks
	SL-5 (ORDER NO. SD81112090C2) ➡	SL-5 [PA, PE, PC]			
A4	RJA43Z [EK]	QFC1100	AC Cord	1	
	RJA26Z [XL]				
	RJA20Z [Other Areas]				
	QFC1103 [XA]				
A5	SFDKI19118	Deletion	.....	0	
A7	Addtion	QJP0603S	Adaptor, Gimens	1	
PACKING PARTS					
P1	SFHPC05C01 [EF]	SFHPC05M01	Carton Box	1	
	SFHPC05M01 [Other Areas]				

Printed in Japan
8201450 Ⓗ AM

ORDER NO. SD82072259C4

Service Manual

Direct Drive Automatic Turntable System

SL-5(K)

[PA], [PE], [PC]

* The colors of this model include silver and black.
* The black type model is provided with (K) in the Service Manual.

Areas

* [PA] is available in Far East PX.
* [PE] is available in European Military.
* [PC] is available in European Audio Club.

Please use this manual together with the service manual for Model No. SL-5, Order No. SD81112090C2.

CHANGES

■ REPLACEMENT PARTS LIST

Note:
(K) —marked parts are used for black only, while
O —marked parts are for silver tupe only.

Ref. No.	Change of Part No. SL-5 (ORDER NO. SD81112090C2)	Change of Part No. SL-5 (K) [PA, PE, PC]	Part Name & Description	Per Set (Pcs.)	Remarks
SWITCH					
S901	SFDSHXW225–2 [XA] only	SFDSHXW225–2	Switch, Voltage Selector	1	
FUSES					
F1	XBA2C02T1B [XA]	XBA2C02T1B	Fuse, T200mA 250V	1	
	XBA2C06T1B [Other Areas]				
F2	XBA2C06T1B [XA] only	XBA2C06T1B	Fuse, T630mA 250V	1	
POWER TRANSFORMER					
T1	SLT48DT4E [EK, XL]	SLT57DT1A	Power Transformer, Power Source	1	
	SLT57DT1A [XA]				
	SLT48DT3E [Other Areas]				
CABINET and CHASSIS PARTS					
6	SFACC05N01 O	SFACC05S21 (K)	Cabinet (Black)	1	
11	SFDJHSC0492 [Other Areas]	SFDJHSC04912	Socket, AC Cord	1	
	SFDJHSC04912 [XA] only				
20	SFKKC05N02 O	SFKKC05N21 (K)	Label, Speed Selector (Black)	1	
24	SFADC05N01E O	SFADC05S21E (K)	Dust Cover (Black)	1	
49	SFNNC05S01 [E, EC]	SFNNC05P01 [PA, PE]	Name Plate	1	
	SFNNC05G01 [EK, XL]				
	SFNNC05X01 [XA]	SFNNC05P02 [PC]	Name Plate	1	
	SFNNC05R01 [Other Areas]				
68	PEC–P24S	EPC–P28	Cartridge	1	
	EPS–24CS	EPS–28ES	Stylus	1	

Technics

Panasonic Tokyo
Matsushita Electric Industrial Co., Ltd.
1-2, 1-chome, Shibakoen, Minato-ku, Tokyo 105 Japan

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

Ref. No.	Change of Part No.		Part Name & Description	Per Set (Pcs.)	Remarks
	SL-5 (ORDER NO. SD81112090C2) ➡	SL-5 (K) [PA, PE, PC]			
ACCESSORIES					
A1	SFNUC05G01 [EK, XL]	SFNUC05G01	Instruction Book	1	
	SFNUC05X01 [XA]				
	SFNUC05R01 [EG]				
	SFNUC05F01 [EF]				
	SFNUC05I01 [Ei]				
	SFNUC05S01 [Other Areas]				
A4	RJA43Z [EK]	QFC1100	AC Cord	1	
	RJA26Z [XL]				
	RJA20Z [Other Areas]				
A5	SFDK119118 [XA] only	Deletion	.....	0	
A7	Addtion	QJP0603S	Adaptor, Gimens	1	
PACKING PART					
P1	SFHPC05C01 [EF] only ○	SFHPC05M21 Ⓚ	Carton Box (Black)	1	
	SFHPC05M01 [Other Areas] ○				

Printed in Japan
82070610 Ⓗ AM

Technics

Technical Information

INTRODUCTION

This techinical information is a summary of quality problems encountered with OSD products,which have occurred in JAPAN and overseas.
This techinical information is issued as a reference to help you improve your servicing by reporting problems which have occurred in various marckets.
Please keep the contents strictry confidential.
We hope you find the contents useful.

CONTENTS

Ref NO.	MODEL	TROUBLES - REPORTED
L - 24	SL-5 ,DL5	Return position is abnormal.
L - 25	SL-Q33,D33	Turntable does not stop or start without start command.
B - 1	SB-G900	New techinical information.

YASUHIKO IWAMI

G.M.
STEREO DIVISION
SERVICE DEPARTMENT

SUBJECT	Return position is abnormal.

Model	SL-5,DL5

Information from:	JAPAN

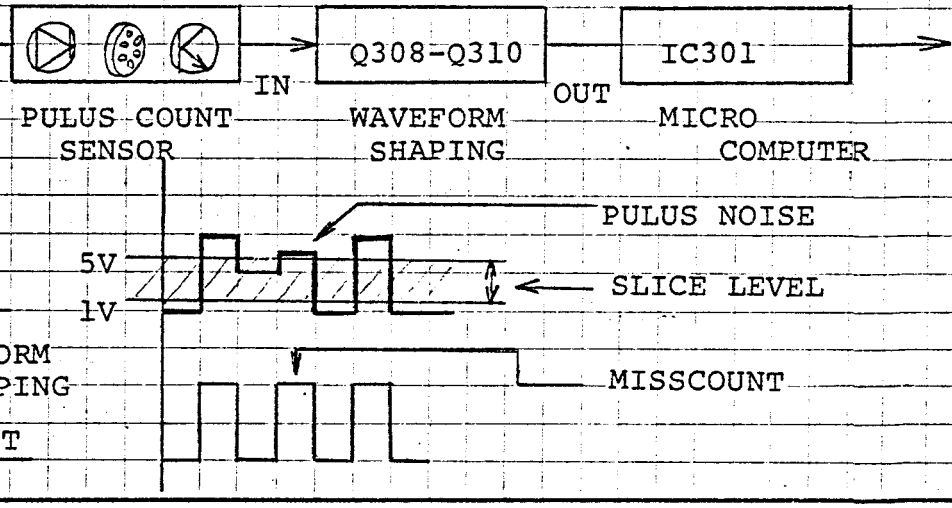
Sympton

Return timing of tonearm is too fast.

Tonearm is returning before music completed.

Cause and Explanation

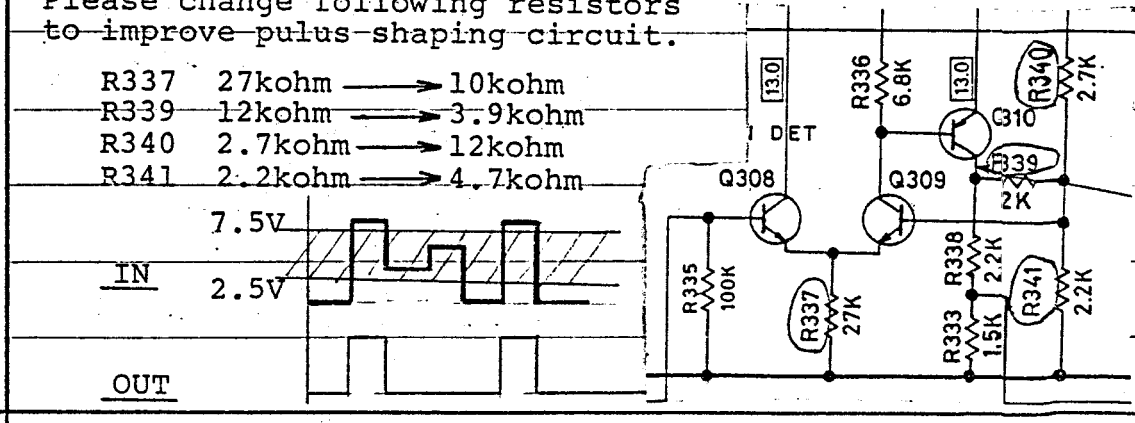
Pulus counter circuit is misscounted by the pulus noise which come from unstable rotation of pulus count mechanism.



REMEDY

Please change following resistors to improve pulus-shaping circuit.

R337	27kohm	→ 10kohm
R339	12kohm	→ 3.9kohm
R340	2.7kohm	→ 12kohm
R341	2.2kohm	→ 4.7kohm



Effective Date

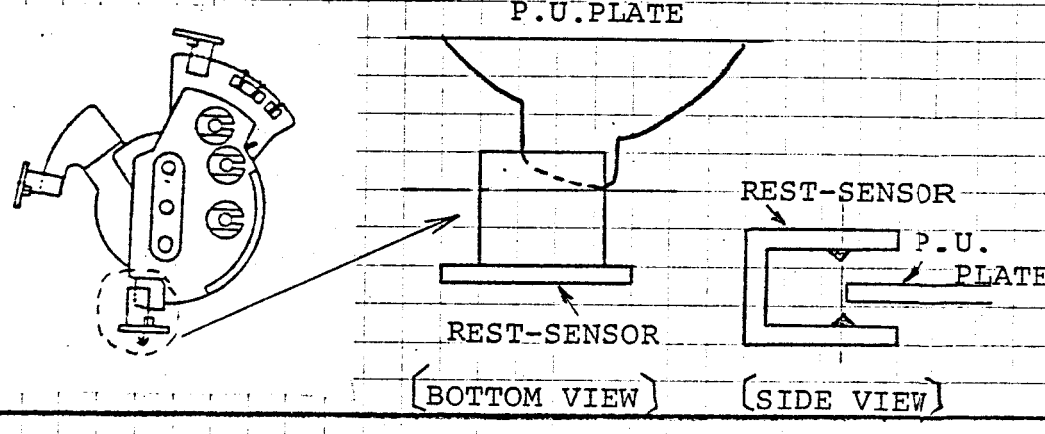
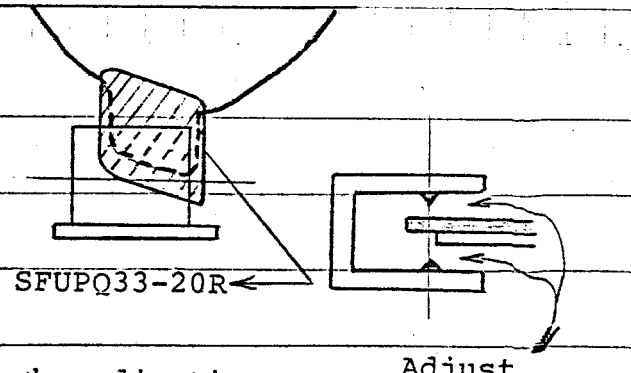
1.Cannot find this phonomenon by manual operating.

2.Nonstandard cutting disc cannot improve by this remedy.

SUBJECT	Turntable does not stop or start without start command.

Model	SL-Q33,D33

Information from:	JAPAN

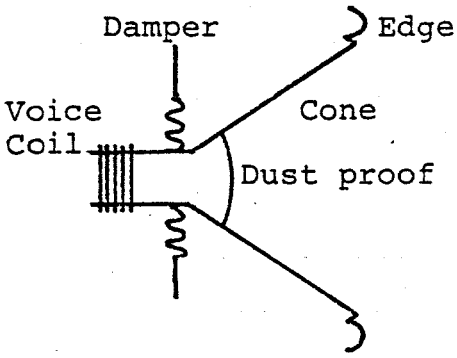
Sympton	P.U.plate was incorret position at rest sensor. 1.Turntable does not stop after the pick up return to the rest. 2.Turntable begin to rotate before pressing the start switch.
Cause and Explanation	P.U.plate was incorret position at rest sensor. (TONE ARM FIXING PLATE ASSY) 
Remedy	Please stick SFUPQ33-20R on to the P.U. plate.  Keep the safety clearance by adjusting the fixing screws of the rest sensor, after that fix screws with glue.
Effective Date	When you get such problem,please order SFUPQ33-20R to us.

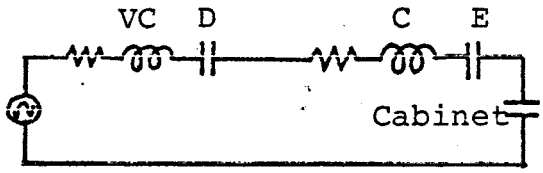
No._____

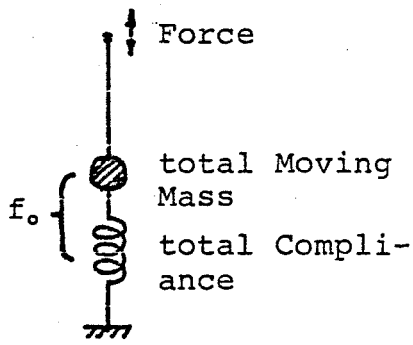
SUPER BASS WOOFER utilized in the Speaker system SB-G900

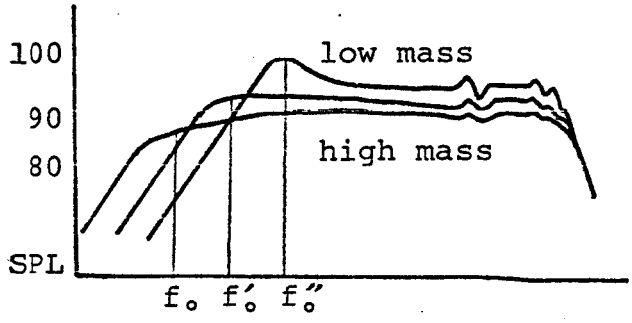
Features 1.High efficiency 99dB/Watt at 1m
2.High handling power 300Watt max music input
3.Low intermodulation distortion

Conventional Woofer







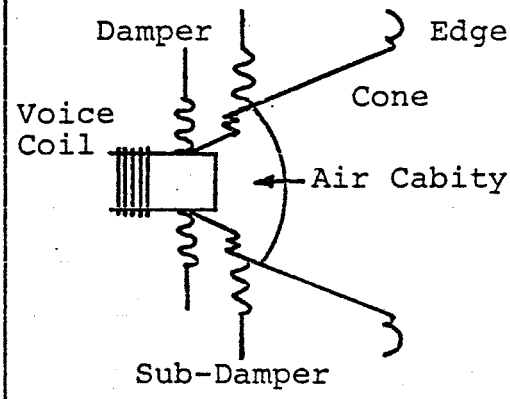


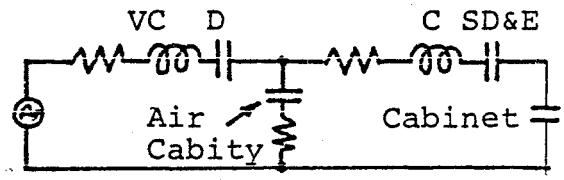
Hard to get low f_o with high SPL

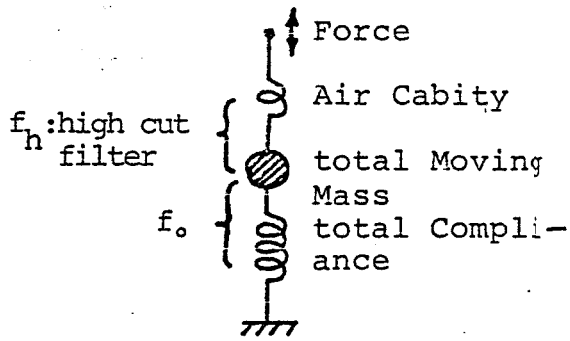
When use light Corn to increase the Efficiency ,then the f_o will be higher.

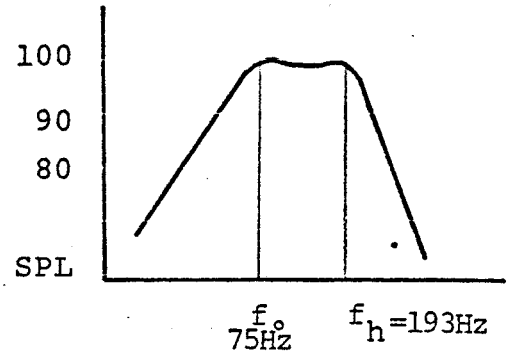
When use heavy Corn to lower the f_o, then the efficiency will decr ease

Super Bass Woofer









Low f_o with high Efficiency

When choose the f_o, f_h, B, Q at optimum condition, then low f_o with high efficiency and lower intermodulation distortion system can be obtained.